



Final

**Action Memorandum / Interim Remedial
Action Plan: Non-Time Critical Removal
Action for Solid Waste Disposal Areas
Installation Restoration Site 12
Old Bunker Area**

**Naval Station Treasure Island
San Francisco, California**

February 15, 2007

Prepared for:

**Base Realignment and Closure
Program Management Office West
San Diego, California**

Prepared under:

**Naval Facilities Engineering Command
Contract Number N68711-03-D-5104
Contract Task Order 0129**

DS.B129.20753

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2 Comments and DoN Responsiveness Summary on the Engineering Evaluation and Cost Analysis for Solid Waste Disposal Areas at Installation Restoration Site 12, Old Bunker Storage Area, Naval Station Treasure Island, San Francisco, California

3 Public Involvement: Fact Sheet, September 2006; Fact Sheet, October 2006; EE/CA Public Notice Text; EE/CA Public Meeting Reminder Postcard; Public Meeting Presentation, Transcript, and Sign-In Sheet; Fact Sheet, November 2006; and Draft AM/IRAP Public Notice Text

4 DoN Administrative Record Index, Installation Restoration Site 12

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ACRONYMS AND ABBREVIATIONS

| § | Section |
|-----------------|---|
| AM | Action Memorandum |
| ARAR | Applicable or relevant and appropriate requirement |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| Bay | San Francisco Bay |
| Bay Plan | San Francisco Bay Plan |
| BCDC | Bay Conservation and Development Commission |
| BCT | BRAC Cleanup Team |
| BEC | BRAC Environmental Coordinator |
| bgs | Below ground surface |
| BRAC | Base Realignment and Closure |
| Cal. Code Regs. | <i>California Code of Regulations</i> |
| Cal/EPA | California Environmental Protection Agency |
| CCSF | City and County of San Francisco |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | <i>Code of Federal Regulations</i> |
| COC | Chemical of concern |
| CRP | Community Relations Plan |
| DHHS | U.S. Department of Health and Human Services |
| DoN | Department of the Navy |
| DTSC | Department of Toxic Substances Control |
| EE/CA | Engineering evaluation and cost analysis |
| EPA | U.S. Environmental Protection Agency |
| FFSRA | Federal Facility Site Remediation Agreement |
| FS | Feasibility study |
| HRA | Historical radiological assessment |
| IC | Institutional control |
| IR | Installation Restoration |
| IRAP | Interim Remedial Action Plan |
| mg/kg | Milligram per kilogram |

ACRONYMS AND ABBREVIATIONS (Continued)

| | |
|-------------|--|
| NAVSTA TI | Naval Station Treasure Island |
| NBAR | Nonbinding allocation of responsibility |
| NCP | National Oil and Hazardous Substances Pollution Contingency Plan |
| NTCRA | Non-time-critical removal action |
| PAH | Polycyclic aromatic hydrocarbon |
| PCB | Polychlorinated biphenyl |
| PMO | Program Management Office |
| PRG | Preliminary remediation goal |
| PRP | Potentially responsible party |
| RAWP | Removal Action Work Plan |
| RCRA | Resource Conservation and Recovery Act |
| RD | Remedial Design |
| RI | Remedial investigation |
| SLERA | Screening-Level Ecological Risk Assessment |
| SWDA | Solid Waste Disposal Areas |
| TCRA | Time-critical removal action |
| tit. | Title |
| U.S.C. | <i>United States Code</i> |
| Water Board | San Francisco Bay Regional Water Quality Control Board |

ACTION MEMORANDUM / INTERIM REMEDIAL ACTION PLAN

Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108

February 15th, 2007

**Subject: Action Memorandum / Interim Remedial Action Plan:
Non-Time Critical Removal Action
for Solid Waste Disposal Areas, Installation Restoration
Site 12, Old Bunker Area
Naval Station Treasure Island, San Francisco, California**

**Site Status: Non-National Priorities List
Removal Category: Non-Time Critical Removal Action
CERCLIS ID: CA7170023330
Site ID: IR Site 12**

1. PURPOSE

The purpose of this Action Memorandum (AM)/Interim Remedial Action Plan (IRAP) is to document, for the Administrative Record, the Department of the Navy's (DoN) decision to undertake a non-time-critical removal action (NTCRA) to excavate and dispose of debris and contaminated soil from the four known solid waste disposal areas (SWDA) at Installation Restoration (IR) Site 12, Old Bunker Area, at the former Naval Station Treasure Island (NAVSTA TI). [Note: the AM/IRAP document has been titled to incorporate both DoN terminology (AM) and DTSC nomenclature (IRAP).] [Figure 1](#) shows the location of NAVSTA TI, and [Figure 2](#) identifies the location of IR Site 12 within NAVSTA TI. The Department of Defense has the authority to undertake Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions, including removal actions, under Title 42 *United States Code* (U.S.C.) Section (§) 9604, 10 U.S.C. § 2705, and federal Executive Order 12580. Furthermore, this removal action is, to the maximum extent possible, consistent with Division 20, Chapter 6.8, Article 5 of the *California Health and Safety Code*.

IR Site 12 is a 93-acre occupied residential area consisting of 700 housing units. This planned removal action is meant to address potential human health risk to a resident or utility worker from direct contact with soil near the ground surface of IR Site 12 under the current land use and utility configuration ([Figure 3](#)). The NTCRA will reduce potential risks to human health by excavating and removing debris and contaminated soil from the four SWDAs within IR Site 12 (SWDA A & B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court). By doing this, the selected removal action will substantially eliminate the identified pathways of exposure to hazardous substances for current and future residents and utility workers to the chemicals of

concern (COC) identified in the Engineering Evaluation and Cost Analysis (EE/CA) (SulTech 2006c). The COCs identified at IR Site 12 include dioxins, lead, polychlorinated biphenyls (PCB), and polycyclic aromatic hydrocarbons (PAH) in soil within all four SWDAs and methane in soil gas in a small, localized area of SWDA A & B (SulTech 2006c). The potential risk to human health at IR Site 12 does not warrant an emergency or time-critical removal action (TCRA) because the SWDAs are unoccupied and fenced; or when occupied, interim measures are in place to restrict contact with potentially contaminated soil. The proposed removal action is intended to be consistent with the final remedy for IR Site 12 (SulTech 2006c).

The removal action for this site is deemed consistent with the factors set forth within the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at Title 40 of the *Code of Federal Regulations* (CFR) Part 300, and Division 20, Chapter 6.8, Article 5 of the *California Health and Safety Code*, based on the findings of potential exposure of current and future residents and utility workers to dioxins, lead, PCBs, PAHs, and methane. These findings are discussed in more detail in [Section 3](#).

No nationally significant or precedent-setting issues are associated with this site.

2. SITE CONDITIONS AND BACKGROUND

This section presents the description, location, and background for IR Site 12 and the physical characteristics and past releases from the site, as well as the site regulatory status and current and previous actions at IR Site 12.

2.1 SITE DESCRIPTION

IR Site 12 is also known as the “Old Bunker Area” because, from the 1940s to the 1960s, ammunition was stored in bunkers at the site. In addition, areas between and around the bunkers were used for solid waste disposal (SulTech 2006c). Disposing of waste in these areas resulted in the release of dioxins, lead, PCBs, and PAHs into the surface soil (0 to 4 feet below ground surface [bgs]). Methane gas was detected in the surface soils at concentrations above the action level of 5 percent by volume in air within SWDA A & B (Figure 3). Beginning in the 1960s, the ammunition bunkers were removed from IR Site 12 and the area was graded by mixing and spreading the solid waste material with fill and near-surface soil, both within and outside the known SWDAs, to prepare the site for construction of DoN housing (SulTech 2006c). The SWDAs to be addressed in the NTCRA consist of grassy lawns, common areas, roadways, and residential backyards (SulTech 2006c).

2.1.1 Removal Site Evaluation

IR Site 12 was identified during a Preliminary Assessment in 1988 (Dames and Moore 1988). From 1940 to 1960, both trench-type disposal units and general SWDAs were constructed and used for the disposal of materials such as loose rubbish, bottles, wire rope, paper, and steel drums

(SulTech 2006c). These areas were combined into four identified SWDAs, currently known as SWDA A & B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court (Figure 3). Disposal of household waste, construction debris, trash incinerator ash, and sandblast waste also is suspected to have occurred in these SWDAs (SulTech 2006c). The four SWDAs were identified as the primary areas of release through evaluation of historical site data (aerial photographs, reports, and construction drawings) and site investigation (trenching, borings, inspection, and sample collection). The total acreage of the four SWDAs evaluated in this AM/IRAP is 6.8 acres.

SWDA A & B comprises 3.4 acres and is adjacent to, intersects, or includes Buildings 1119, 1121, 1123, 1125, 1133, 1319, 1321, 1323, and 1325 (Figure 3). Solid wastes disposed of and subsequently spread throughout the SWDA A & B resulted in sporadic releases of dioxins, lead, PAHs, and methane to soil. Based on results of previous and current investigations conducted between 1995 and 2003, concentrations of dioxins, lead, and PAHs exceeded their respective action levels and these COCs may potentially pose a threat to current and future residents and utility workers if interim measures such as fencing, groundcover, hardscape, and posted signage are not maintained (SulTech 2006c).

SWDA 1207/1209 comprises 1.9 acres and is adjacent to, intersects, or includes Buildings 1205, 1207, 1209, 1211, 1213, and 1222 (Figure 3). Solid wastes disposed of and subsequently spread throughout the SWDA 1207/1209 resulted in sporadic releases of lead, PCBs, and PAHs to soil. Based on results of previous and current investigations conducted between 1995 and 2003, concentrations of lead and PAHs exceeded their respective action levels and these COCs may potentially pose a threat to current and future residents and utility workers if interim measures such as fencing, groundcover, hardscape, and posted signage are not maintained (SulTech 2006c).

SWDA 1231/1233 comprises 1.0 acre and is adjacent to, intersects, or includes Buildings 1229, 1231, 1233, 1235, and 1237 (Figure 3). Solid wastes disposed of and subsequently spread throughout the SWDA 1231/1233 resulted in sporadic releases of lead, PCBs, and PAHs to soil. Based on results of previous and current investigations conducted between 1995 and 2003, concentrations of lead, PCBs, and PAHs exceeded their respective action levels and these COCs may potentially pose a threat to current and future residents and utility workers if interim measures such as fencing, groundcover, hardscape, and posted signage are not maintained (SulTech 2006c).

SWDA Bigelow Court comprises 0.54 acres and intersects or includes Buildings 1101 and 1103 (Figure 3). Solid wastes disposed of and subsequently spread throughout SWDA 1231/1233 resulted in sporadic releases of lead, PCBs, and PAHs to soil. Based on results of previous and current investigations conducted between 1995 and 2003, concentrations of lead, PCBs, and PAHs exceeded their respective action levels and these COCs may potentially pose a threat to current and future residents and utility workers if interim measures such as fencing, groundcover, hardscape, and posted signage are not maintained (SulTech 2006c).

2.1.2 Physical Location

NAVSTA TI is located in the San Francisco Bay (Bay), midway between San Francisco and Oakland, California (Figure 1). NAVSTA TI consists of two contiguous islands: Treasure Island, which is 403 acres, and Yerba Buena Island, which is 147 acres. Treasure Island is manmade and was constructed of materials dredged from the Bay in 1936; Yerba Buena Island is a natural island. Beyond the waters of the Bay, NAVSTA TI is surrounded by the extensively developed, mixed-use lands of the San Francisco Bay Area, a major metropolitan center of business, industry, government, and residential development, with a population exceeding 6.6 million. All vehicular transportation to and from Treasure Island and Yerba Buena Island must use the San Francisco-Oakland Bay Bridge (Interstate 80), which passes through Yerba Buena Island. Oakland is located 8.5 miles east of Treasure Island on Interstate 80, and San Francisco is located 5 miles west of Treasure Island on Interstate 80. IR Site 12 is located on the northwestern portion of Treasure Island and occupies about 93 acres of the island (Figure 2).

The primary mission of NAVSTA TI when it was operational was to provide training, services, and material in support of operating forces and designated shore activities for the Pacific Fleet (DoN 2006). The climate is characterized as semiarid, with rainy winters and dry summers. Relative humidity ranges from 50 to 90 percent; it is lowest during fall days and highest during winter nights (DoN 1987). The average annual precipitation is 20 inches. The precipitation occurs mostly from November to April. Residences or public areas or facilities are located within NAVSTA TI. IR Site 12 is adjacent to the Bay. The Bay is made up of many varied habitats, including deep waters, wetlands, and upland areas, which provide important staging and wintering areas for migratory waterfowl and shorebird populations of the Pacific Flyway (San Francisco Estuary Project 1992).

2.1.3 Site Characteristics

IR Site 12 is predominantly a residential housing area, consisting of residential buildings with fenced back yards, open grassy areas between the buildings, common areas, and paved roads and parking areas. In 1993, NAVSTA TI was designated for closure under the Base Closure and Realignment Act of 1990 (Public Law 101-510, Title XXIX, 10 U.S.C. § 2687 note). The naval station was closed on September 30, 1997, and is currently managed by the DoN's Base Realignment and Closure (BRAC) Program Management Office (PMO) West. According to the Draft Reuse Plan (City and County of San Francisco [CCSF 1996]), IR Site 12 is designated for residential, open space, and publicly oriented uses. The land use of surrounding areas (or property) includes a public school, daycare center, and various commercial/industrial uses (SulTech 2006c).

In the 1940s and 1950s, DoN disposed of debris and incinerated rubbish in several locations within the SWDAs at IR Site 12, resulting in a release of dioxins, lead, PCBs, PAHs, and methane to the environment. This NTCRA will be the fourth removal action to address COCs at IR Site 12 within the SWDAs. Three prior TCRA for the SWDAs have occurred at IR Site 12. The first TCRA was conducted between June and August, 1999 in the vicinity of Buildings 1207/1209, where lead-contaminated soil was removed and replaced with clean fill. The second

TCRA was conducted in the vicinity of Building 1133 in November 1999 to remove lead-contaminated soil. The third TCRA was conducted in the area of Halyburton and Bigelow Courts in July 2000 to remove PCB- and PAH-contaminated soil, and the boundary of IR Site 12 was expanded.

2.1.4 Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant

COCs identified at IR Site 12 are pollutants or contaminants as defined by § 101(33) of CERCLA. These COCs include dioxins, lead, PCBs, PAHs, and methane ([SulTech 2006c](#)). Dioxins, lead, PCBs, and PAHs could migrate from soil by wind or runoff. Methane, if present in soil gas, poses a threat of fire and explosion.

No COCs have been identified in groundwater for this NTCRA at IR Site 12. The SWDAs were identified based on sampling data for soil collected during previous investigations at IR Site 12 ([SulTech 2006c](#)). The DoN (1) set an ambient action level for dioxins in soils; (2) developed risk-based action levels for lead and PAHs in soils; (3) set the action level for PCBs to that specified in the Toxic Substances Control Act for high-occupancy areas at 40 CFR § 761.61(a)(4); and (4) set the methane in soil gas to that specified in *California Code of Regulations* (Cal. Code Regs.), Title (tit.) 27, § 20921 ([SulTech 2006c](#)). The COCs at IR Site 12 were detected at concentrations exceeding the following action levels:

- Dioxins: Toxic equivalent ambient level of 12 nanograms per kilogram ([SulTech 2006c](#))
- Lead: U.S. Environmental Protection Agency (EPA) residential preliminary remediation goal (PRG) of 400 milligrams per kilogram (mg/kg) ([EPA 2004](#))
- PCBs: Toxic Substances Control Act action level of 1 mg/kg for high-occupancy areas ([SulTech 2006c](#))
- PAHs: Benzo(a)pyrene-equivalent concentration of 0.62 mg/kg ([SulTech 2006c](#))
- Methane: 5 percent by volume in air at the facility property boundary at Cal. Code Regs., tit. 27, § 20921 ([SulTech 2006c](#))

The potential routes of exposure to human receptors include incidental ingestion of soil, dermal contact with soil, inhalation of particulates released from soil to ambient air, dermal contact with shallow groundwater, and inhalation of volatile chemicals in outdoor air from soil or groundwater in the vapor phase. Risk to human health is posed by COC-contaminated soil within the four SWDAs and the presence of methane gas in SWDA A & B that is at or near the ground surface (0 to 4 feet bgs). The potential risk to a future utility worker who maintains or installs utility lines and receptors who may inhale vapors transported from the subsurface is being evaluated in the upcoming Remedial Investigation (RI) Report. The planned removal

action is meant to address potential risk to a resident or utility worker under the current land and utility configuration ([SulTech 2006c](#)).

Because of the artificial and disturbed nature of ecological habitat at NAVSTA TI, ecological exposure of plants and invertebrates to COC-contaminated soil is limited to those species that can adapt to urbanized environments. No complete exposure pathways exist to ecologically sensitive ecosystems or receptors at NAVSTA TI ([SulTech 2006b](#)). Therefore, removal action objectives are not required to address potential ecological receptors.

The physical properties of each COC that influence or determine how it migrates are described below.

Dioxins: Dioxins may be naturally produced from the combustion of organic material by forest fires or volcanic activity or produced by industrial, municipal, and domestic incineration and combustion processes. Dioxins are stable compounds that have high thermal stability and resist degradation in both acidic and alkaline environments ([SulTech 2006c](#)). Dioxins sorb strongly to organic carbon in soil and sediment, have very low solubility in water, are classified as immobile compounds, and exhibit very low potential for volatilization to ambient outdoor air ([Fetter 1988](#); [Agency for Toxic Substances and Disease Registry \[ATSDR\] 1998](#)). However, dioxins could be mobilized through wind erosion or surface water transport of the affected soil ([SulTech 2006c](#)).

Lead: Lead is naturally occurring in soil; however, it also is a byproduct of burning fossil fuels, mining, and manufacturing. Lead in soil is generally insoluble, except under acidic conditions. Groundwater conditions at IR Site 12 are not acidic, and lead was not detected in groundwater during groundwater monitoring events at IR Site 12 ([Tetra Tech EM Inc. 2002](#)). In addition to having low solubility, lead binds electrostatically to soil and is strongly sorbed to organic matter in soil, limiting its transport in soil ([Fetter 1993](#)). Lead could be mobilized through wind erosion or surface water transport of affected soil ([SulTech 2006c](#)).

PCBs: PCBs are manmade oily liquids or solids formerly used as coolants and lubricants in electrical equipment or in fluorescent lighting. PCBs are stable compounds that have high thermal stability and resist degradation in both acidic and alkaline environments. Like dioxins, PCBs sorb strongly to organic carbon in soil, have very low solubility in water, are classified as immobile compounds, and exhibit very low potential for volatilization to ambient outdoor air ([Fetter 1988](#); [ASTDR 2000](#)). As a result, PCBs could be mobilized through wind erosion or surface water transport of the affected soil.

PAHs: PAHs are created by incomplete combustion of coal, oil and gas, garbage, or other organic compounds. PAHs as a group generally have low water solubility, sorb strongly to organic carbon in soil and sediment, are classified as immobile compounds, have low vapor pressures with volatility tending to increase with decreasing molecular weight, and exhibit very low potential for volatilization to ambient outdoor air ([Fetter 1988](#); [ASTDR 1995](#)). Because PAHs are strongly sorbed to soil and are essentially insoluble in water, they are mobilized only through wind erosion or surface water transport of the affected soil.

Methane: Methane is created during the natural breakdown of buried solid waste. Methane is a colorless, odorless, tasteless gas that is flammable and has a lower explosive limit of 5 percent by volume in air (SulTech 2006c). Methane-rich environments can result in heightened risk of explosion and lead to asphyxiation. If present beneath an existing soil surface, methane can migrate vertically upwards if the permeability of the overlying soil allows or if preferential pathways (such as utility conduits) exist (SulTech 2006c). Methane also can accumulate below an impermeable layer such as hardscape.

2.1.5 National Priorities List Status

NAVSTA TI is not on the National Priorities List for Uncontrolled Hazardous Waste Sites. Pursuant to the Defense Environmental Restoration Program, codified at 10 U.S.C. §§ 2701, et seq., and the delegation of certain presidential authorities under Executive Order 12580, *Superfund Implementation* and Executive Order 13016, *Superfund Amendments*, the DoN is the lead agency for NAVSTA TI environmental restoration activities, including activities in response to the release of CERCLA hazardous substances, pollutants, or contaminants. This removal action is also consistent, to the maximum extent possible, with *California Health and Safety Code*, Division 20, Chapter 6.8, Article 5.

2.1.6 Maps, Pictures, and Other Graphic Representations

Figures and tables relevant to this AM/IRAP are included immediately following [Section 11](#). [Figures 1](#) and [2](#) show the location of NAVSTA TI and IR Site 12; [Figure 3](#) illustrates the site features; and [Figures 4](#) and [5](#) present the NTCRA schematic diagram and the NTCRA map, including truck route and staging areas. [Tables 1](#), [2](#), and [3](#) present the chemical-, location-, and action-specific applicable or relevant and appropriate requirements (ARAR) for the NTCRA, and [Table 4](#) summarizes the costs associated with the NTCRA.

2.2. OTHER ACTIONS TO DATE

This section provides information about previous removal actions completed and any current actions underway at IR Site 12.

2.2.1 Previous Actions

Three TCRAAs relating to the SWDAs identified as part of this NTCRA have occurred at IR Site 12. The first removal was a TCRA conducted in the vicinity of Buildings 1207 and 1209, between the months of June and August, 1999 (SulTech 2006c). Lead-contaminated soil was removed near Buildings 1207 and 1209, where a hot spot was identified in a former burn pit area ([Figure 3](#)). About 2,200 cubic yards of soil was excavated and replaced with clean fill.

The second removal action was a TCRA conducted in the vicinity of Building 1133, which is within SWDA A & B, in November 1999 to remove lead-contaminated soil ([Figure 3](#)). About 3,100 cubic yards of soil was excavated and replaced with clean fill (SulTech 2006c). No further

removal actions are planned for the areas surrounding Building 1133 because these areas were addressed by the TCRA.

The third removal action was a TCRA conducted in the area of Halyburton and Bigelow Courts in July 2000 ([SulTech 2006c](#)). Most of the removal occurred in Halyburton Court, with additional removal on the eastern side of Bigelow Court and a small area between Buildings 1411 and 1413 in Flounder Court ([Figure 3](#)). Both Halyburton and Bigelow Courts were fenced in July 2000, when the removal action began. To date, this removal has been the largest on IR Site 12; about 11,300 cubic yards of PCB- and PAH-contaminated soil was excavated and replaced with clean fill ([SulTech 2006c](#)). In 2002, the IR Site 12 boundary was expanded to include the former storage yard area of concern, which overlapped portions of Halyburton Court and Bigelow Court.

In October 2000, the DoN met with the California Environmental Protection Agency's (Cal/EPA) Department of Toxic Substances Control (DTSC) and agreed to develop a plan for interim measures in the areas around the SWDAs, while also considering the detections at Buildings 1211 and 1235 ([SulTech 2006c](#)). Vacant buildings within the SWDAs were fenced off in early January 2001 and signage was placed at each area. In addition, 12 backyards among Buildings 1213, 1235, and 1237 were supplied with required ground cover (sod or concrete) to prevent possible exposure of a resident to soil until a more permanent remedy is selected ([SulTech 2006c](#)).

2.2.2 Current Actions

As the lead agency, the DoN initiated a Community Relations Program in coordination with the DTSC, Cal/EPA's San Francisco Bay Regional Water Quality Control Board (Water Board), and EPA. The Community Relations Program is intended to solicit community input and to keep the community informed about IR Site 12 actions. A Community Relations Plan (CRP) was implemented in 1997 to identify community interest in the investigation and cleanup of contaminated soil, sediments, and groundwater at NAVSTA TI. The CRP also outlined community relations activities to inform and involve the community. The CRP was updated in 2002 and more recently in 2006 to meet the changing information needs of the community ([SulTech 2006a](#)).

The DoN encourages the public to gain a more thorough understanding of CERCLA activities conducted at NAVSTA TI by attending the Restoration Advisory Board meetings. Meetings are held at the Casa de la Vista on NAVSTA TI on the third Tuesday of every other month and are open to the public. The Restoration Advisory Board was established in 1994 to allow residents of NAVSTA TI and members of the larger San Francisco communities to provide input on the investigation and cleanup process.

An EE/CA was recently completed to evaluate five removal action alternatives at the four SWDAs: SWDA A & B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court ([SulTech 2006c](#)). Comments were solicited from the public on the EE/CA during the 30-day public comment period from October 12 through November 11, 2006. The EE/CA is included as [Attachment 1](#), and the public comments received on the EE/CA are provided in [Attachment 2](#).

Additionally, the DoN held a public meeting on October 24, 2006, to solicit comments on the EE/CA. [Attachment 3](#) contains fact sheets from September, October, and November 2006, including information on the history and progress of removal action activities at IR Site 12; the text from the EE/CA public notice; a reminder postcard for the EE/CA public meeting; the presentation, transcript, and sign-in sheet from the public meeting at NAVSTA TI, held on October 24, 2006, and the public notice for the Draft AM/IRAP.

Pertinent IR Site 12 documents from the Administrative Record are available to the public for review in the information repository, which has been established at the following locations:

| | |
|---|---|
| BRAC PMO Caretakers Site Office Detachment 410 Palm Avenue, Building 1, Room 161 Naval Station Treasure Island (415) 743-4704 | San Francisco Public Library 100 Larkin Street, 5th Floor Government Publications Section, San Francisco, (415) 557-4400 |
|---|---|

The Administrative Record Index for IR Site 12 is provided in [Attachment 4](#).

This AM/IRAP was released for public review and comment on December 27, 2006. The public comment period on this AM/IRAP occurred from December 27, 2006, until January 29, 2007. A summary of the regulatory comments received and DoN's responses are provided as [Attachment 5](#). Additionally, a summary of the public comments received and DoN's responses are provided as [Attachment 6, Responsiveness Summary](#).

Given the logistics involved with implementing this soil removal action and the need to minimize truck traffic, dust, and noise effects to residents, removal action activities are being limited to the winter season. Therefore, it will be necessary to conduct the removal action over the course of two years. Removal actions at SWDA A & B, SWDA 1207/1209, and SWDA 1231/1233 will be conducted in February 2007, and removal actions at SWDA Bigelow Court are planned to begin in winter 2008.

2.3. STATE AND LOCAL AUTHORITIES' ROLES

This section discusses the roles of regulatory agencies with potential involvement in the NTCRA for IR Site 12. The DoN is the lead federal agency for all CERCLA response efforts on NAVSTA TI. A Federal Facility Site Remediation Agreement (FFSRA) was signed by the DoN, DTSC, and the Water Board on September 29, 1992 ([DoN 1992](#)). The FFSRA establishes a framework for consultation, coordination, and dispute resolution concerning environmental response actions between the DoN and the State of California regulatory agencies involved in the IR Program at NAVSTA TI. The following regulatory agencies provide oversight for NAVSTA TI: (1) the DTSC is the lead regulatory agency and provides oversight; (2) the Water Board acts as a support agency to DTSC, and is responsible for overseeing cleanup of petroleum-contaminated sites; and (3) EPA Region 9 provides federal agency support to the DTSC ([SulTech 2006a](#)).

A project team has been established at NAVSTA TI and is led by the BRAC Environmental Coordinator (BEC). The project team meets monthly for program reviews to reach consensus on decisions with federal and state regulatory agencies. The core team, which is the BRAC Cleanup Team (BCT), includes the BEC and representatives of EPA and DTSC. Other key participants on the project team include DoN remedial project managers, representatives from the Water Board and the CCSF, and technical consultants.

2.3.1 Regulatory Actions to Date

The EPA, DTSC, and the Water Board have had the opportunity to review and comment on all CERCLA response actions at IR Site 12. These federal and state agencies have provided technical advice and oversight during the preliminary assessment and site investigation process and all the removal actions conducted to date at IR Site 12. Presentations have been provided about planned sampling approaches, analytical results, site characterization, and risk assessments at IR Site 12 during BCT meetings.

2.3.2 Potential for Continued State and Local Response

EPA, DTSC, and the Water Board have provided technical advice and oversight and assistance with development of the alternatives described in the EE/CA and the removal action selected in this AM/IRAP. These federal and state agencies will continue to provide technical advice and oversight and assistance for IR Site 12 throughout the IR process. It is expected that the DoN's Department of Defense and State Memorandum of Agreement account will continue to be the exclusive source of funding for State oversight.

3. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

In accordance with the NCP, the following threats must be considered in determining the appropriateness of a removal action (40 CFR § 300.415 [b][2]):

- Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chains.
- Actual or potential contamination of drinking water supplies or sensitive ecosystems.
- Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release.
- High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

- Threat of fire or explosion.
- The availability of other appropriate federal or state response mechanisms to respond to the release.
- Other situations or factors that may pose threats to public health or welfare or the environment.

3.1 THREATS TO PUBLIC HEALTH OR WELFARE

The following three of the above threats apply to conditions at IR Site 12.

- Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chains.
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- Threat of fire or explosion.

In addition, the potential threat--“High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate”--identified in the NCP (40 CFR Section 300.415[b][2]) would apply only if interim measures are not maintained at IR Site 12.

Pursuant to CERCLA § 104(a)(1)(A) (Title 42 U.S.C. § 9604[a][1][A]), a response action may be taken whenever there is a release or substantial threat of release of a hazardous substance. Dioxins, lead, PCB, and PAHs, have been released into the environment and are CERCLA hazardous substances. Pursuant to CERCLA § 104(a)(1)(B) a response action may be taken whenever there is a release or substantial threat of release of any pollutant or contaminant that may present an imminent and substantial danger to the public health or welfare. Methane gas emanating from a small area within SWDA A & B is a pollutant or contaminant that presents an imminent and substantial danger because of its explosive potential. Soils near the ground surface at each SWDA are a threat because they may contain dioxins, lead, PCBs, and PAHs at concentrations above action levels, resulting in an unacceptable risk to human health through several exposure pathways.

A risk evaluation for the removal action was prepared as part of the EE/CA to assess the health effects associated with exposure to contaminated soil at the four SWDAs ([SulTech 2006c](#)). COC concentrations in soil were compared with the action levels for soil ([Section 2.1.4](#)). Data presented in the risk evaluation demonstrated an increased risk to human receptors because of levels of dioxins, lead, PCBs, and PAHs at the four SWDAs, and an imminent and substantial danger posed by methane at a small area within SWDA A & B. The potential human receptors evaluated included residents (adults and children) in occupied housing units, future residents (adults and children), recreational users of the common areas, landscape workers, and workers who install or service underground utilities ([SulTech 2006c](#)).

The potential pathways for current and future residents include incidental ingestion of soil, dermal contact with soil, and inhalation of particulates released from soil to ambient air. In addition to the three exposure pathways identified for the residents, potential exposure pathways for the utility worker also include dermal contact with shallow groundwater and inhalation of volatile chemicals in outdoor air from soil and/or groundwater in the vapor phase. The potential risks to a future utility worker who maintains or installs utility lines and receptors who may inhale vapors transported from subsurface are being evaluated in the upcoming RI Report. The planned removal action is meant to address potential risk to a resident or utility worker under the current land and utility configuration ([SuTech 2006c](#)).

The action levels and fate and transport of these COCs are described in [Section 2.1.4](#). The harmful properties of the identified COCs are presented below.

- **Dioxins:** The carcinogenic toxicity of dioxins is well established, especially for the most potent congener in the group, 2,3,7,8-tetrachlorodibenzo-*p*-dioxin, classified by EPA as a B2 probable human carcinogen ([EPA 1997](#)). Humans are exposed to dioxins in soil through inhalation, absorption, ingestion, and dermal contact ([U.S. Department of Health and Human Services \[DHHS\] 1997](#)). Exposure to dioxins can cause severe reproductive and development problems, as well as damage the immune system and interfere with hormonal systems. Dioxins exposure has been linked to birth defects, inability to maintain pregnancy, decreased fertility, reduced sperm counts, endometriosis, diabetes, learning disabilities, immune system suppression, lung problems, skin disorders, and lowered testosterone levels ([Energy Justice Network 2006](#)).
- **Lead:** No accepted toxicity values are available for lead wherever child receptors and other sensitive sub-populations may be exposed to lead-contaminated media. The potential for human health effects caused by lead is typically determined based on estimated blood-lead concentrations. Humans are exposed to lead in soil through inhalation, ingestion, and dermal contact ([DHHS 1997](#)). Exposure to lead can cause serious physiologic effects, including death or long-term damage to brain function and organ systems, as well as cause hypertension, reproductive toxicity, and developmental effects ([ATSDR 2006a](#)).
- **PCBs:** According to EPA, “Of the 209 PCB congeners, a dozen are now considered by many toxicologists to be ‘dioxin-like’ because of their toxicity and certain features of their structure which make them similar to 2,3,7,8-tetrachlorodibenzo-*p*-dioxin” ([EPA 2006](#)). Humans are exposed to PCBs in soil through inhalation, absorption, ingestion, and dermal contact ([DHHS 1997](#)). Exposure to PCBs can cause adverse dermatologic, reproductive and developmental, endocrine, hepatic, and immunologic effects ([ATSDR 2006b](#)).

- **PAHs:** Animal studies have shown that PAHs can cause harmful effects on the skin, body fluids, and ability to fight disease after both short- and long-term exposure. But these effects have not been seen in people. DHHS has determined that some PAHs may reasonably be expected to be carcinogens. Some people who have breathed or touched mixtures of PAHs and other chemicals for long periods of time have developed cancer. Some PAHs have caused cancer in laboratory animals when they breathed air containing them (lung cancer), ingested them in food (stomach cancer), or had them applied to their skin (skin cancer) ([ATSDR 1996](#)). Humans are exposed to PAHs in soil through inhalation, ingestion, and dermal contact ([DHHS 1995](#)).
- **Methane:** No known toxicological effects are associated with methane, according to the EPA's Integrated Risk Information System database ([EPA 2005](#)) or DTSC's Office of Environmental Health Hazard Assessment's toxicological database ([DTSC 2004](#)). The lower explosive limit of methane corresponds to methane levels of 5 percent methane by volume in air ([SulTech 2006c](#)). Asphyxia may result if the oxygen concentration is reduced to below 18 percent by displacement ([Voltaix, Inc. 1996](#)).

IR Site 12 is currently the NAVSTA TI housing area, where more than 1,000 people reside. A potential threat exists, although interim measures such as fencing, covering the ground with concrete pavement or sod, and posting signage have been taken. The nature of this risk indicates that removing contaminated soil is required to reduce potential threats to public health. The recommended NTCRA in this AM/IRAP will address these potential threats to public health.

3.2 THREATS TO THE ENVIRONMENT

The following three of the above threats apply to conditions at IR Site 12.

- Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations, animals, or food chains.
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.
- Threat of fire or explosion.

Potential groundwater concerns have been identified within SWDA A & B and SWDA 1207/1209 ([SulTech 2006c](#)). Analysis of the data from 2004 for samples collected from monitoring wells in these SWDAs indicated elevated concentrations of metals were detected in groundwater and identified chemicals of potential concern in groundwater based on a comparison with ambient water quality criteria ([SulTech 2006c](#)). However, chemical concentrations detected in samples from monitoring wells located along the shoreline did not exceed ecological screening levels for surface water. These wells are monitored semiannually to support (1) completion of RIs and feasibility studies (FS) for CERCLA sites, and (2) completion of corrective action plans, interim action plans, construction summary reports, and closure reports for Petroleum Program sites.

Because of the close proximity to the Bay, a potential threat exists to ecological receptors in the Bay. This potential threat will be evaluated for IR Site 12 during the RI/FS phases of the CERCLA process. As a result, no groundwater COCs were identified for the NTCRA at IR Site 12.

Although it is unlikely that the COCs would have a negative ecological effect at IR Site 12, a screen for potential adverse effects of chemicals in soil on the soil invertebrate community, terrestrial plants, and birds and mammals was recently conducted as part of the Screening-Level Ecological Risk Assessment (SLERA) for NAVSTA TI ([SulTech 2006b](#)). As part of the SLERA, an ecological site survey was conducted in March 2006, which confirmed that habitat at IR Site 12 consists of residential areas with multifamily houses, landscaped lawns, and landscaped vegetation. The SLERA did not identify any ecological resources or processes at NAVSTA TI that needed to be protected or sustained and concluded that IR Site 12 does not pose an ecological risk due to an incomplete exposure pathway ([SulTech 2006b](#)).

4. ENDANGERMENT DETERMINATION

Actual or threatened releases of dioxins, lead, PCBs, PAHs, and methane from IR Site 12, if not addressed by implementing the response action selected in this AM/IRAP, may present an imminent and substantial endangerment to public health, welfare, or the environment if interim measures are not maintained at IR Site 12.

5. SELECTED ACTION AND ESTIMATED COSTS

The EE/CA developed, compared, and evaluated five removal action alternatives for the four SWDAs: SWDA A & B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court.

5.1 SELECTED ACTION

This section describes the selected removal action alternative for this NTCRA, Alternative 3 of the EE/CA, which is to excavate soil from the common areas, roadways, and backyards to a depth of 4 feet bgs and replace with clean fill. Soil beneath the hardscape (concrete driveways and sidewalks) will not be excavated. This section also describes alternative technologies that were evaluated in the EE/CA, but not selected. Institutional controls (IC) were evaluated as part of the EE/CA removal action alternative and a cost estimate was prepared. ICs are not being implemented during the removal action. Instead, site-wide ICs for IR Site 12 will be evaluated and implemented through the CERCLA remedial process (RI/FS, Proposed Plan, and Record of Decision). A discussion of ARARs, an estimate of cost for implementing the NTCRA, and the proposed project schedule are also discussed in the following sections.

5.1.1 Selected Action Description

The selected removal action alternative to address the risks at the four SWDAs in IR Site 12 is to excavate and appropriately dispose of contaminated soil and debris off site ([Figure 4](#)). The

selected removal action alternative protects human health and the environment by removing chemical- and solid waste-contaminated soil within the SWDAs (except in hardscape areas), thereby minimizing the potential for exposure to residents and utility workers (SulTech 2006c). Excavation to a depth of 4 feet bgs approaches the groundwater table. A visible geotextile material will be placed at the base of an excavation before backfilling to delineate the vertical extent of the excavation, as well as inhibit the transport of contaminated subsurface soils (at depths greater than 4 feet bgs) to the surface. This removal action alternative will comply with all identified ARARs, will reduce the on-site volume of contaminated soil, is technically feasible, and is easy to implement. Contractors are readily available and have the equipment and expertise necessary to excavate contaminated soil, and the capacity of the off-site disposal facilities is adequate to handle the volume of excavated soil.

A Removal Action Work Plan (RAWP) / Remedial Design (RD) is being prepared for the removal action alternative and will include a sampling and analysis plan, site health and safety plan, environmental protection plan, waste management plan, quality control plan, radiological soil screening plan, and stormwater pollution prevention plan. [Note: the RAWP/RD document has been titled to incorporate both DoN terminology (RAWP) and DTSC nomenclature (RD).] The selected removal action alternative will require approximately 7 months to mobilize necessary equipment, prepare the site for excavation, excavate chemical- and solid waste-contaminated soil, transport and dispose of excavated soil off site, restore the site, and demobilize equipment from the site. This removal action alternative provides a timely response intended to be consistent with the final remedy for IR Site 12 by reducing the likelihood of human exposure to chemical- and solid waste-contaminated soil in the four SWDAs. The proposed action consists of the following tasks:

1. Mobilization
2. Site Preparation
3. Radiological Soil Screening
4. Excavation of Soil and Debris
5. Confirmation Soil Sampling
6. Transportation and Disposal of Soil to an Off-Site Permitted Landfill
7. Site Restoration
8. Demobilization

Each of these tasks is summarized below.

5.1.1.1 Task 1 – Mobilization

The mobilization for the NTCRA will involve completion of the following activities:

- Residents will be notified of the planned excavation through a fact sheet, public meeting, and work notices.
- Pre-excavation grades and conditions will be documented.
- Underground utility clearance surveying will be conducted.
- An exclusion zone, decontamination area, and general work areas for the excavation, hauling, loading, and weighing of the soil and solid waste will be established.
- Polyethylene liners will be installed in areas designated to store excavated soil.
- Storm drains within the excavation areas will be bermed or otherwise protected, as necessary, to prevent stormwater runoff from reaching the Bay in accordance with the stormwater pollution prevention plan.
- Measures will be taken to prevent off-site migration of stormwater. If necessary, excess stormwater may be disposed of at the on-site wastewater treatment plant in accordance with the stormwater pollution prevention plan, and disposal will be coordinated with San Francisco Public Utilities Commission plant operations.
- Dust suppression measures will be implemented and dust monitoring equipment will be placed along the perimeter of the excavation areas.

Equipment and trucks will access the work site via gates along the identified truck route and dump truck route identified on [Figure 5](#). These gates will be closed on the weekends, allowing public access to the sections of perimeter road between SWDAs 1207/1209 and A & B as well as south of SWDA A & B. Due to safety concerns, access to perimeter road during the work week, will not be allowed. Portions alongside Avenue “N” and a parking lot across from Building 570 will serve as a truck staging area. The truck loading area will contain a vehicle decontamination pad and a separate area for stockpiling soil and solid wastes to be profiled.

5.1.1.2 Task 2 – Site Preparation

Existing backyard wood fencing, backyard patios, grass and trees, and other surface features will be removed before the start of excavation activities. Each SWDA excavation site will be secured with a temporary 6-foot-high chain-link fence to protect the public from the construction efforts.

5.1.1.3 Task 3 – Radiological Soil Screening

A historical radiological assessment (HRA) was conducted at NAVSTA TI in 2006 ([Weston Solutions 2006](#)). The HRA report identified the only know use of radiological material in IR

Site 12 occurred at the former USS Pandemonium Damage Control Training Center site, which was located east of SWDA A & B. The radiological material used included sealed cesium-137 sources and short-lived isotopes (bromine-82, bromine-80, potassium-42, and sodium-42) which have half-lives of less than 35.3 hours. The HRA concluded that the USS Pandemonium site was not impacted from the use of the sealed sources or short-lived isotopes and did not require further investigation or action. The report summarized the results of radiological screening at more than 580 test trenches outside of the known SWDA and throughout IR Site 12. The results indicated radiological contamination is not present at IR Site 12; however, the HRA report recommended radiological screening during excavation of soil at the SWDAs with known disposal pits (SWDAs A & B, 1207/1209, and 1231/1233). Although it is highly unlikely that any radiological material would be found during soil excavation, excavated soils will be characterized for radioactivity through both surface and subsurface radiological screening of the SWDA excavated material, as recommended in the HRA report ([Weston Solutions 2006](#)).

Before excavation begins, a RAWP/RD will be prepared and will include a radiological soil screening plan, which will include a sampling and analysis plan and site health and safety plan. The DoN Radiological Affairs Support Office will review and approve the radiological soil screening plan. Although the actual equipment, methods, and detailed procedures for performing the radiological soil screening will be presented in the radiological soil screening plan, the general procedure would involve scanning surface soils for radiological materials, removing any areas with radiological materials in soil above the field screening level, and excavating a lift of soil followed by more radiological scanning.

5.1.1.4 Task 4 – Excavation

Excavation will occur in roadways, backyards, and common areas within the SWDAs, not including hardscape areas such as concrete driveways and sidewalks ([Figure 3](#)). Sidewalks in the SWDA adjacent to roadways are considered part of the roadway and will be excavated. Excavations will be advanced to a maximum depth of 4 feet bgs within the SWDAs. Vertical cut on the excavation sidewalls down to 4 feet bgs will be implemented as practicable depending on engineering considerations. Applicable engineering considerations include structural stability of excavation, buildings, and hardscape; equipment operability limitations near building and hardscape structures; and project personnel health and safety requirements. The depth of excavation may require a moderate amount of mechanical support or removal and replacement of underground utilities. Hand digging may be required to remove solid waste contaminated soil in close proximity to the utilities. Utilities encountered will either be temporarily rerouted to allow excavation to continue or temporarily supported during excavation activities.

The estimated lateral extent of the excavation for each SWDA is shown on [Figure 3](#). The actual lateral extent of the SWDA excavation will be based on the presence of chemical and physical hazards in the sidewalls, as determined by confirmation sampling ([Section 5.1.1.5](#)). It is estimated that the total volume excavated will be 31,000 cubic yards of soil and debris, which corresponds to approximately 1,800 truckloads (18 cubic yard capacity trucks).

Measures will be taken during excavation, staging, and loading of contaminated soil to reduce and control short-term risks to residents resulting from inhalation of fugitive dust and direct contact with excavated soil. Risks will be minimized through use of dust suppression measures (such as water and physical barriers) and prevention of unauthorized access to work areas (SulTech 2006c). Dust monitoring equipment will be used, and the on-site health and safety officer will provide continuous visual monitoring. During excavation, if at any time detectors indicate dust suppression measures are not functioning effectively, the work site will be shut down until such a time that dust suppression measures can be effectively executed. Trucks will be decontaminated before they leave controlled areas to avoid spreading contamination off site. Contact with exposed utilities will be avoided.

The local community also may face additional short-term effects resulting from increased truck traffic during excavation and backfilling and increased inconvenience in using backyards while excavations are open. These effects could include noise, increased traffic, and temporary disruption of utility services. Engineering controls and mitigation measures will be implemented during the NTCRA to minimize any potential short-term effects to the community. The DoN will follow a traffic strategy as outlined in the traffic control section of the RAWP/RD which would ensure truck deliveries on and off Treasure Island are scheduled prudently to avoid causing traffic congestion on the bridge during the cleanup period. Residents of some buildings may be temporarily displaced while work is performed adjacent to their buildings. If residents need to be relocated, the DoN will coordinate with the Treasure Island Development Authority in advance to minimize any disruptions.

It is assumed an excavator, backhoe, and a front-end loader at each SWDA could complete the excavations in about 3 months. Personnel will excavate the site in modified Level D personal protective equipment, which includes blue tyvek, rubber booties over steel-toed boots, latex gloves, hard hats, and safety glasses. Visual screening will be used to guide excavation until all visible debris has been removed.

Current soil gas and trenching results indicated the presence of solid waste with methane within a small area at SWDA A & B. Excavation of the methane-affected area will be conducted using appropriate health and safety measures to protect both the community and workers from potential explosion hazards. In addition, appropriate equipment decontamination procedures will be used to prevent the unintentional transport of contaminated soil.

5.1.1.5 Task 5 – Confirmation Sampling

The extent of contamination and completeness of the NTCRA will be verified by collecting samples for analysis to confirm concentrations of COCs meet the established action levels (Section 2.1.4). The estimated lateral extent of the excavation for each SWDA is shown on Figure 3. The actual lateral extent of the SWDA excavation will be determined based on results of confirmation samples collected from the sidewalls. Confirmation samples will be collected at the base and sidewalls of the excavation; however in no case will the excavation extend deeper than the prescribed depth of 4 feet bgs. If analytical results for the confirmation samples indicate a greater area of contamination than was initially expected, the DoN may choose to remove

additional material. No contamination will be left in place exceeding action levels above 4 foot bgs in the excavation areas. A more detailed discussion will be presented in the sampling and analysis plan that will be developed for the removal action. Quality assurance and quality control samples also will be collected.

5.1.1.6 Task 6 – Transportation and Disposal

Excavated soil and debris will be hauled to appropriate off-site permitted landfills via trucks. However, based on existing soil data for metals, it is likely that some of the excavated material will be hauled to a Class I (hazardous waste) landfill. Therefore, it is assumed that 85 percent of the waste will be disposed of in a Class I landfill facility and 15 percent in a Class II landfill facility.

5.1.1.7 Task 7 - Site Restoration

Fabric will be placed at the bottom of the excavated areas, and the areas will be backfilled with clean soil and graded to reestablish the existing contours and elevations to the extent practicable. Backfilling and grading may take up to 2 months. Sod in the front and backyards of the occupied buildings will be replaced, the common areas will be re-seeded, and immature 15- to 20-gallon sized trees will be planted. Erosion control will be developed to aid the growth of vegetation. Backyard wood fencing will be reinstalled at the inhabited buildings to replace fencing demolished and removed prior to excavation. Carports will not be replaced. After backfilling and grading, final site restoration may take an additional 2 months.

5.1.1.8 Task 8 – Demobilization

Upon completion of the Tasks 1 through 7, equipment will be decontaminated before leaving the site, demobilized, and all staging areas and work sites associated with the NTCRA will be cleared of removal action-related equipment and signage.

5.1.2 Contribution to Remedial Performance

The removal action is intended to be consistent with the final remedy for IR Site 12 by reducing the likelihood of human exposure to chemical- and solid waste-contaminated soil in the four SWDAs. The removal action will substantially eliminate the identified pathways of exposure to hazardous substances for current and future residents and utility workers to the COCs identified in the EE/CA. Elimination of the identified pathways of exposure will significantly reduce the primary risk to residents and utility workers from SWDA COCs for the current land use configuration ([SulTech 2006c](#)). The final remedy to address any remaining risk will be evaluated through the CERCLA RI/FS process, presented in the Proposed Plan / Draft Remedial Action Plan and documented in the Record of Decision / Remedial Action Plan for IR Site 12.

5.1.3 Description of Alternative Technologies

The EE/CA developed for this NTRCA identified five alternatives that could be implemented within the SWDAs at IR Site 12 (SulTech 2006c). The alternatives generally fall into two categories: capping and soil excavation (including or excluding the hardscape). Each of the alternatives is summarized below. Alternative 3 is the removal action selected in this AM/IRAP.

Alternative 1: Soil excavation to 2 feet bgs, excluding excavation below hardscape. Properly maintained hardscape functions as an effective exposure prevention barrier preventing a complete exposure pathway to human receptors. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet bgs. Soils below concrete hardscape will not be excavated. Alternative 1 (1) will be protective of human health by restricting the exposure pathway, thus reducing the potential for exposure to residents and future utility workers; (2) would be implementable; and (3) would comply with the ARARs identified for IR Site 12. Alternative 1 would not reduce the volume or toxicity of chemicals and solid waste present in excavated soil; however, the on-site volume of contaminated soil would be reduced. Also, by limiting soil disturbance by residents, the potential to mobilize and distribute contaminated soil and solid waste left in place below 2 feet bgs would be limited. Alternative 1 is estimated to cost \$7.3 million.

Alternative 2: Soil excavation to 2 feet bgs, including excavation below hardscape. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet bgs. Soils below hardscape would also be excavated. Alternative 2 would protect human health and the environment, because it would involve excavating and removing chemical- and solid waste-contaminated soil and would comply with the ARARs identified for IR Site 12. Alternative 2 would not reduce the volume or toxicity of chemicals and solid waste present in excavated soil; however, the on-site volume of contaminated soil would be reduced. Alternative 2 is estimated to cost \$7.9 million.

Alternative 3: Soil excavation to 4 feet bgs, excluding excavation below hardscape. Soil would be excavated beneath utilities and roadways up to a maximum depth of 4 feet bgs. Soils below concrete hardscape would not be excavated. Properly maintained hardscape functions as an effective exposure prevention barrier preventing a complete exposure pathway to human receptors. Alternative 3 would protect human health and the environment because it would involve excavating and removing chemical- and solid waste-contaminated soil, thereby minimizing the potential for exposure to residents and future utility workers. This alternative would comply with the ARARs identified for IR Site 12. Alternative 3 would provide a high level of long-term effectiveness and permanence because a large volume of chemical- and solid waste-contaminated soil would be removed and transported for disposal at a permitted off-site disposal facility. Alternative 3 is estimated to cost \$11.2 million.

Alternative 4: Soil excavation to 4 feet bgs, including excavation below hardscape. Alternative 4 would protect human health and the environment because excavation of contaminated soil, minimizes the potential for exposure to residents and future utility workers. This alternative

would comply with the ARARs identified for IR Site 12. Alternative 4 would provide a high level of long-term effectiveness and permanence because the largest volume of chemical- and solid waste-contaminated soil would be removed and transported for disposal at a permitted off-site disposal facility. Alternative 4 is estimated to cost \$12.3 million.

Alternative 5: Construct a concrete cap in all areas within the SWDAs not already covered by hardscape. The concrete cap covering the entire SWDAs would act as an effective exposure prevention barrier to prevent long-term residential exposure to contaminants in soil. This alternative would comply with the ARARs identified for IR Site 12 and would provide long-term effectiveness and permanence. Alternative 5 is estimated to cost \$3.6 million.

5.1.4 Engineering Evaluation / Cost Analysis

An EE/CA was developed for this NTCRA (SulTech 2006c). The EE/CA identified and evaluated several removal action alternatives for contaminated soil within the SWDAs at IR Site 12. The EE/CA is provided in Attachment 1, and includes a full discussion of the removal action alternatives considered. The EE/CA was released for public review and comment on October 12, 2006. The public comment period on the EE/CA occurred from October 12, 2006, until November 11, 2006. A summary of the comments received and DoN's responses to those comments are provided in Attachment 2. Attachment 3 contains fact sheets from September, October, and November 2006, including information on the history and progress of removal action activities at IR Site 12; the text from the EE/CA public notice; a reminder postcard for the EE/CA public meeting; and the presentation, transcript, and sign-in sheet from the public meeting at NAVSTA TI, held on October 24, 2006, and the public notice for the Draft AM/IRAP. Attachment 4 contains a list of documents that can be found in the Administrative Record for IR Site 12.

5.1.5 Applicable or Relevant and Appropriate Requirements

Section 300.415 of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines applicable requirements as those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstances at a CERCLA site. Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or siting laws that, while not applicable, to a hazardous substance, pollutant or contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Only substantive requirements are considered as possible ARARs because CERCLA on-site response actions do not require permitting. Administrative requirements such as approval of, or consultation with administrative bodies, issuance of permits, documentation, reporting, record keeping, and enforcement are not ARARs for CERCLA actions that are confined to the site.

There are three types of ARARs. The first type includes chemical-specific requirements. These ARARs set limits on the concentrations of specific hazardous substances, contaminants, and pollutants in the environment. Examples of this type of ARAR are ambient water quality criteria and drinking water standards. The second type of ARAR includes location-specific requirements that set restrictions on certain types of activities based on site characteristics. These include restrictions on activities in wetlands, floodplains, and historic sites. The third type of ARAR includes action-specific requirements. These ARARs are technology-based restrictions that are triggered by the type of action under consideration. Examples of action-specific ARARs are Resource Conservation and Recovery Act (RCRA) regulations for waste treatment, storage, and disposal.

ARARs must be identified on a site-specific basis from information about specific chemicals at the site, specific features of the site location, and actions that are being considered as removal actions. The discussion that follows is an analysis of the most salient ARARs for the selected alternative. It may include ARARs that potentially apply, but that are eliminated when actual field work provides more specific information.

Tables 1, 2, and 3 present the ARARs along with a determination of ARAR status (applicable or relevant and appropriate) for the NTCRA. The EE/CA contained in Attachment 1 presents a detailed evaluation and discussion of potential ARARs for all alternatives, including Alternative 3, evaluated in the EE/CA.

5.1.5.1 Federal Applicable or Relevant and Appropriate Requirements

The process of identifying and evaluating federal ARARs by the DoN is described in the following subsections. The federal government implements a number of environmental statutes that are a source of potential federal ARARs, either in the form of the statutes themselves or as regulations promulgated under these statutes.

As the lead federal agency, DoN has the primary responsibility for identifying federal ARARs for this NTCRA. The NTCRA was reviewed against all potential ARARs including, but not limited to, those set forth at 55 *Federal Register* 8764-8765 (1990), to determine whether they are applicable or relevant and appropriate using CERCLA and NCP criteria and procedures for ARARs identification by lead federal agencies. The DoN has identified the substantive provisions of the following federal ARARs.

5.1.5.1.1 Federal Chemical-Specific Applicable or Relevant and Appropriate Requirements

The substantive provision of the following RCRA requirements are chemical-specific ARARs for characterization of any waste, such as excavated soil and debris, define a RCRA hazardous waste, and set forth RCRA hazardous waste land disposal restrictions:

- Cal. Code Regs., tit. 22, § 66261.21
- Cal. Code Regs., tit. 22, § 66261.22(a)(1)
- Cal. Code Regs., tit. 22, § 66261.23
- Cal. Code Regs., tit. 22, § 66261.24(a)(1)
- Cal. Code Regs., tit. 22, § 66261.100
- Cal. Code Regs., tit. 22, § 66268.1(f)

The following substantive provisions of the Toxic Substances Control Act self-implementing on-site cleanup and disposal option are ARARs for PCB remediation waste:

- 40 CFR § 761.61(a)(4) – allowing a bulk PCB remediation waste cleanup level for high-occupancy areas of less than or equal to 1 mg/kg (or part per million).

5.1.5.1.2 Federal Location-Specific Applicable or Relevant and Appropriate Requirements

IR Site 12 is adjacent to the Bay. The DoN has identified the substantive provisions of the following as ARARs:

- Coastal Zone Management Act at 16 U.S.C. § 1456(c) and 15 CFR § 930 – requiring that federal agency activities within the coastal zone comply with requirements of approved state coastal zone management programs.

The approved state coastal zone management program for the Bay is discussed under state location-specific ARARs.

No other federal location-specific ARARs are identified for this NTCRA.

5.1.5.1.3 Federal Action-Specific Applicable or Relevant and Appropriate Requirements

The substantive provisions of the following RCRA, Clean Air Act, and Clean Water Act requirements are federal ARARs for the actions conducted under this NTCRA.

Resource Conservation and Recovery Act

- Cal. Code Regs., tit. 22 §§ 66261.10 and 66261.11 – requiring a determination of whether waste generated in the removal action is RCRA hazardous waste
- 40 CFR § 264.554(d)(1)(i–ii) and (d)(2), (e), (f), (h), (i), (j), and (k) – allowing generators of RCRA hazardous waste to temporarily stage the waste for off-site disposal

Clean Air Act

- Bay Area Air Quality Management District Regulation 6-302 – prohibiting emissions for a period aggregating more than 3 minutes in any hour to greater than or equal to 20 percent opacity

Clean Water Act

- Clean Water Act § 402(p) and 40 CFR §§ 122.44(k)(2) and (4) – Stormwater discharge requirements for construction that will disturb 1 or more acres requiring the use of best management practices to prevent construction pollutants from contacting stormwater and to keep erosion products from moving off site

5.1.5.2 State Applicable or Relevant and Appropriate Requirements

As the lead state regulatory agency, DTSC has the responsibility for identifying state ARARs. For a state requirement to qualify as an ARAR, the requirement must be (1) a state law or regulation, (2) promulgated, (3) a substantive requirement, (4) an environmental or facility siting law or regulation, (5) more stringent than the federal requirement, (6) identified in a timely manner, and (7) consistently applied.

The DoN will follow the procedures set forth in 40 CFR § 300.515 for remedial actions in seeking state assistance in identifying state ARARs. The state ARARs will be identified during the RI/FS process for the entire site. In conjunction with development of the EE/CA, the DoN made a preliminary identification of potential state ARARs. The state had an opportunity to review and comment on these ARARs when it reviewed the EE/CA. State ARARs specific to this removal action are discussed below.

5.1.5.2.1 State Chemical-Specific Applicable or Relevant and Appropriate Requirements

The substantive provisions of the following requirements are state ARARs:

- Cal. Code Regs., tit. 22 §§ 66261.22(a)(3) and (4), § 66261.24(a)(2)–(a)(8), § 66261.101, § 66261.3(a)(2)(C) or § 66261.3(a)(2)(F) – defining a state regulated non-RCRA waste
- Cal. Code Regs., tit. 27 §§ 20210, 20220 and 20230 – defining designated waste, nonhazardous waste, and inert waste
- Cal. Code Regs., tit. 27 § 20921 – prohibiting methane gas from exceeding 5 percent per volume of air at the property boundary

5.1.5.2.2 State Location-Specific Applicable or Relevant and Appropriate Requirements

The DoN identified the Coastal Zone Management Act as a federal location-specific ARAR. The Coastal Zone Management Act requires that federal agency activities comply with approved state coastal zone programs. The McAteer-Petris Act and the San Francisco Bay Plan (Bay Plan) constitute California's approved coastal management program for the Bay. The Bay Plan was developed by the San Francisco Bay Conservation and Development Commission ([\[BCDC\] 1968](#)). The BCDC was formed under the authority of the McAteer-Petris Act, *California Government Code* § 66600 et seq., which authorizes BCDC to regulate activities within the Bay and its shoreline (including 100 feet landward from the shoreline). The substantive provisions of the Bay Plan are state location-specific ARARs:

- The Bay Plan at Cal. Code Regs. tit. 14, §§ 10110-11990 – prohibiting uncontrolled development and filling of the Bay, reducing disposal of dredged material in the Bay, maintaining marshes and mudflats to the fullest extent possible to conserve wildlife and abate pollution, and protecting the beneficial uses of the Bay.

5.1.5.2.3 State Action-Specific Applicable or Relevant and Appropriate Requirements

There are no state action-specific ARARs.

The DoN identified the substantive provisions of the Clean Water Act stormwater discharge requirements for construction that will affect at least 1 acre as federal ARARs. These ARARs require the use of best management practices to control stormwater discharge. The State of California has promulgated a stormwater general permit as Order Number 99-08-DWQ that describes best management practices. Under CERCLA § 121(e)(1), no federal, state, or local permit is required for any response action conducted entirely on site, where it is selected and

carried out in compliance with CERCLA § 121. Therefore, the DoN will not obtain an individual stormwater permit or submit a notice of intent to discharge under the state’s general permit. The DoN will, however, use the substantive requirements of the state’s general permit for stormwater discharges as “to-be-considered” criteria for complying with the requirement to use best management practices for stormwater discharges promulgated at Clean Water Act § 402(p) and 40 CFR § 122.44(k)(2) and (4).

5.1.6 Project Schedule

The project schedule notes that the removal action will begin in January 2007. As stated in [Section 5.1.1.4](#), the excavation of contaminated soil and debris will take up to 3 months, backfill of excavated areas with clean fill will take another 2 months, and final restoration (including groundcover and backyard fences) will take an additional 2 months. It is anticipated that the RAWP/RD, removal action, site restoration activities, and final completion report will be completed within 18 months after award of the removal action contract. The BCT is currently reviewing the schedule for the SWDA Bigalow Court portion of this NTCRA; the schedule has not yet been finalized but is expected to begin in 2008.

5.2 ESTIMATED COSTS

The DoN has made a present worth estimate of the removal action costs. The estimated costs include direct and indirect capital costs and post-removal site operations and maintenance cost associated with administration of ICs and it is estimated to cost \$11.2 million to implement this NTCRA. Costs associated with administration of ICs were included in the EE/CA cost estimate. However, ICs are not being implemented during the NTCRA and will be developed and evaluated during the RI/FS phases of the CERCLA process for the entire IR Site 12 area.

The following items are considered capital costs and post-removal site control costs:

| Direct Capital Costs | Indirect Capital Costs | Post-Removal Site Control Costs |
|-------------------------------|--|---|
| Construction costs | Engineering and design expenses | Operational costs |
| Equipment and material costs | Legal fees and license or permit costs | Maintenance costs |
| Transport and disposal costs | Startup and shakedown costs | Auxiliary materials and energy requirements |
| Analytical costs | | Disposal of residuals |
| Contingency allowances | | Monitoring costs |
| Treatment and operating costs | | Support costs |

The costs associated with this NTCRA are presented in [Table 4](#) and a detailed cost estimate for Alternative 3 can be found in the EE/CA in [Attachment 1](#). Alternative 3 will include excavation of the common areas, roadways, and backyards to a depth of 4 feet bgs and replacement with clean fill. Soil beneath the hardscape (concrete driveways and sidewalks)

will not be excavated. Alternative 3 is the most cost-effective alternative to meet the cleanup objectives.

6. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If action is delayed or not taken, the interim measures established by the DoN and DTSC in October 2000 would need to remain in place to ensure human receptors would not be exposed to dioxins, lead, PCBs, and PAHs in soil, as well as methane in soil gas, until the CERCLA process is complete. Human exposure to dioxins, lead, PCBs, and PAHs has toxicological implications, while methane poses the threat of asphyxiation, fire, and explosions if interim measures are not maintained.

If action should be delayed or not taken, future potential exposure of human populations to dioxins, lead, PCBs, and PAHs and methane could occur from direct contact with soil and the potential for asphyxiation, fire, and explosions if interim measures are not maintained. Contamination may spread from the SWDAs to nearby areas via wind erosion and surface water runoff. This spread of contamination would result in an increased health risk to the exposed population. Delayed action also may increase public health risks to the adjacent population through prolonged exposure to dermal and airborne contaminants if interim measures are not maintained.

7. PUBLIC INVOLVEMENT

The DoN has circulated the Draft AM/IRAP and EE/CA for public comment, and the Administrative Record is available to the public. The public comment period on the EE/CA was scheduled from October 12, 2006, to November 11, 2006. A summary of the comments received and DoN's response to those comments is included as [Attachment 2](#), along with the complete EE/CA in [Attachment 1](#). The DoN held a public meeting on October 24, 2006, to solicit comments on the EE/CA. [Attachment 3](#) contains fact sheets from September, October, and November 2006, including information on the history and progress of removal action activities at IR Site 12; the text from the EE/CA public notice; a reminder postcard for the EE/CA public meeting; the presentation, transcript, and sign-in sheet from the public meeting at NAVSTA TI, held on October 24, 2006, and the public notice for the Draft AM/IRAP. A responsiveness summary including public comments received and DoN's responses are provided as [Attachment 6](#).

8. OUTSTANDING POLICY ISSUES

No outstanding policy issues exist for this removal action.

9. RECOMMENDATION

This AM/IRAP was prepared in accordance with current EPA and DoN guidance documents for removal actions under CERCLA. This AM/IRAP documents, for the Administrative Record, the DoN's decision to undertake a NTCRA to address dioxins, lead, PCBs, and PAHs in soil within the four SWDAs and methane in soil gas in SWDA A & B at IR Site 12 at NAVSTA TI in San Francisco, California. As described in this AM/IRAP, soil containing dioxins, lead, PCBs, and PAHs and soil gas containing methane pose a threat that meets the NCP criteria for a NTCRA. Further, this AM/IRAP documents DTSC's concurrence in the DoN's decision to implement a removal action and DTSC's agreement that the removal action complies with Division 20, Chapter 6.8, Article 5 of the *California Health and Safety Code* to the maximum extent practicable.

In arriving at this decision, five removal action alternatives were identified, evaluated, and ranked. These alternatives included:

- Alternative 1: Soil excavation to 2 feet bgs, excluding soil removal under hardscape. In addition, soil excavation to 6 inches below the elevation of any utility, if present. Soils below hardscape such as concrete sidewalks and driveways will not be excavated.
- Alternative 2: Soil excavation to 2 feet bgs, including soil removal under hardscape. In addition, soil excavation to 6 inches below the elevation of any utility, if present up to a maximum of 4 feet bgs. Soils below concrete hardscape and unpaved areas, including roadways, will be excavated.
- Alternative 3: Soil excavation to 4 feet bgs in roadways, backyards, and common areas within the SWDAs, excluding soil removal under hardscape. Soils below hardscape such as concrete sidewalks and driveways will not be excavated. Sidewalks in the SWDA adjacent to roadways are considered part of the roadway and will be excavated.
- Alternative 4: Soil excavation to 4 feet bgs, including soil removal under hardscape. Soils below hardscape and unpaved areas including roadways will be excavated.
- Alternative 5: Capping with concrete.

Based on the individual and comparative analysis of the removal action alternatives completed in the EE/CA and summarized in [Section 5.1.4](#), the DoN's recommended removal action is Alternative 3 (soil excavation to 4 feet bgs, excluding soil removal under hardscape). The recommended removal action involves excavating debris and contaminated soil to a maximum depth of 4 feet bgs, disposing of excavated materials at an off-site permitted landfill, backfilling the excavations with imported clean fill material, and restoring the excavated area. The selected removal action is described in [Section 5.1](#) of this AM/IRAP. Alternative 3 is recommended because it will efficiently and effectively meet all removal action objectives, result in the most

rapid reduction of risks posed by the SWDAs, and support the current and planned residential use of the IR Site 12.

Alternative 3 protects human health and the environment by removing chemical- and solid waste-contaminated soil within the SWDAs (except in hardscape areas), thereby minimizing the potential for exposure to current and future residents and utility workers (SulTech 2006c). Alternative 3 will comply with all ARARs, will reduce the on-site volume of contaminated soil, is technically feasible, and is easy to implement. Alternative 3 will require approximately 7 months to mobilize necessary equipment, prepare the site for excavation, excavate chemical- and solid waste-contaminated soil, transport and dispose of excavated soil off site, restore the site, and demobilize. Alternative 3 provides a timely, cost-effective response intended to be consistent with the final remedy for IR Site 12 by reducing the likelihood of human exposure to chemical- and solid waste-contaminated soil in the four SWDAs.

All of the activities conducted during the NTCRA will be consistent with the established requirements set forth in the "Revised Engineering Evaluation and Cost Analysis, Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Storage Area, Naval Station Treasure Island, San Francisco, California"(SulTech 2006c).

This decision document represents the selected removal action for the SWDAs located within IR Site 12, Old Bunker Area, NAVSTA TI, San Francisco, California, developed in accordance with CERCLA as amended and is not inconsistent with the NCP. This decision is based on the Administrative Record for the site.



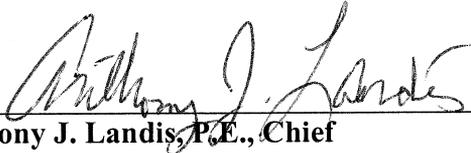
JAMES B. SULLIVAN
BRAC Environmental Coordinator
By direction

2-15-07

Date

10. DECLARATION/STATUTORY DETERMINATION

The DoN prepared this AM/IRAP pursuant to the California Health and Safety Code, § 25350 and the NCP (40 CFR § 300.400 et seq.) The selected remedy, as described in Section 9 of this AM/IRAP, for the upper 4 feet of soils within the SWDA A & B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court boundaries, is intended to be protective of residents and utility workers under the current building configuration. DTSC will select the final remedy for IR Site 12 in a separate decision document. The selected remedy complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action and is cost effective. DTSC hereby approves this AM/IRAP in accordance with the California Health and Safety Code, § 25356.1(b).



Anthony J. Landis, P.E., Chief
Northern California Operations
Office of Military Facilities
Department of Toxic Substances Control

2-15-07

Date

11. NON-BINDING ALLOCATION OF RESPONSIBILITY

The California Health and Safety Code § 25356.1(e) requires the preparation of a nonbinding allocation of responsibility (NBAR) among all identifiable potentially responsible parties (PRP). The California Health and Safety Code § 25356.3(a) allows PRPs with an aggregate allocation in excess of 50 percent to convene an arbitration proceeding by submitting to binding arbitration before an arbitration panel. If PRPs with over 50 percent of the allocation convene arbitration, then any other PRP wishing to do so may also submit to binding arbitration.

The sole purpose of the NBAR is to establish which PRPs will have an aggregate allocation in excess of 50 percent and can therefore convene arbitration if they so choose. The NBAR, which is based on the evidence available to DTSC, is not binding on anyone, including PRPs, DTSC, or the arbitration panel. If a panel is convened, its proceedings are *de novo* (to start over) and do not constitute a review of the provisional allocation. The arbitration panel's allocation will be based on the panel's application of the criteria spelled out in the California Health and Safety Code § 25356.3(c) to the evidence produced at the arbitration hearing. Once arbitration is convened, or waived, the NBAR has no further effect, in arbitration, litigation, or any other proceeding, except that both the NBAR and the arbitration panel's allocation are admissible in a court of law, pursuant to the California Health and Safety Code § 25356.7 for the sole purpose of showing the good faith of the parties who have discharged the arbitration panel's decision.

DTSC sets forth the following preliminary nonbinding allocation of responsibility for SWDA A & B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court within IR Site 12 at the former NAVSTA TI:

The DoN is responsible for the investigation and cleanup activities within the area covered in this AM/IRAP. The DoN has an aggregate allocation of liability in excess of the 50 percent level required to convene arbitration pursuant to the California Health and Safety Code § 25356.3(a).

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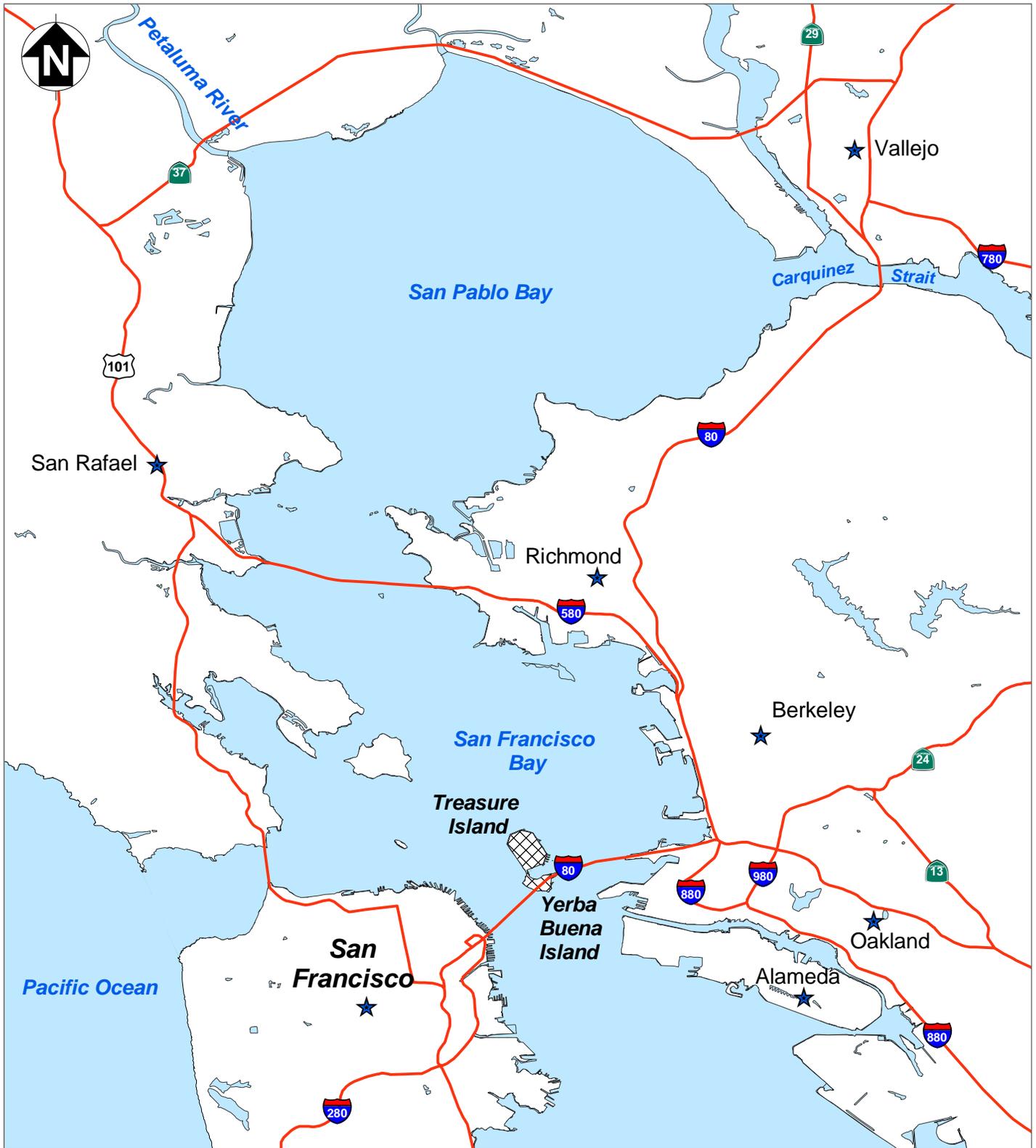
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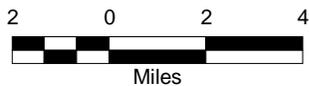
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FIGURES



 NAVAL STATION TREASURE ISLAND



Naval Station Treasure Island, California
Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 1

INSTALLATION LOCATION MAP

AM/IRAP: Non-Time-Critical Removal Action for SWDAs, Installation Restoration Site 12



- INSTALLATION RESTORATION SITE 12
- SOLID WASTE DISPOSAL AREA
- EBS PARCEL
- BUILDING
- WATER
- ROAD



Naval Station Treasure Island, California
 Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 2

SITE LOCATION MAP

AM/IRAP: Non-Time-Critical Removal Action for
 SWDAs, Installation Restoration Site 12



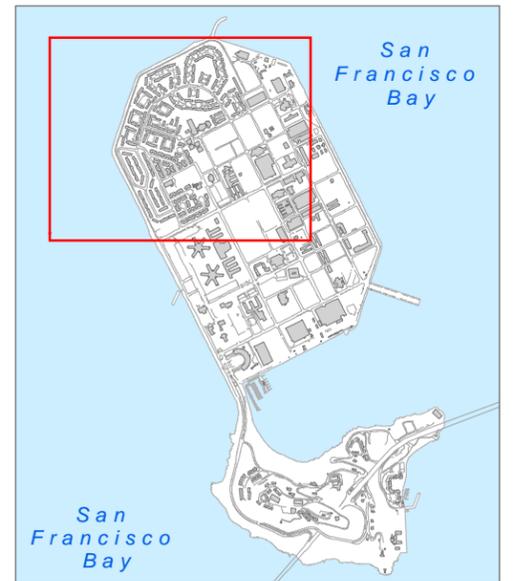
SWDA
1231/1233

SWDA
1207/1209

SWDA
A & B

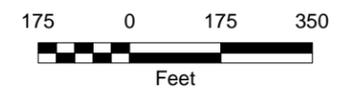
Bigelow Court
SWDA

San Francisco Bay



-  INSTALLATION RESTORATION SITE 12
-  REMOVAL ACTION SWDA
-  SWDA BOUNDARY
-  METHANE BOUNDARY
-  PRIOR EXCAVATION AREA
-  UNOCCUPIED BUILDING
-  BUILDING
-  WATER
-  GATE
-  CURRENT PERMANENT SWDA FENCE
-  ROAD

NOTES:
 PRIOR EXCAVATION AREAS WILL NOT BE RE-EXCAVATED
 DURING THIS REMOVAL ACTION.
 SWDA = SOLID WASTE DISPOSAL AREA

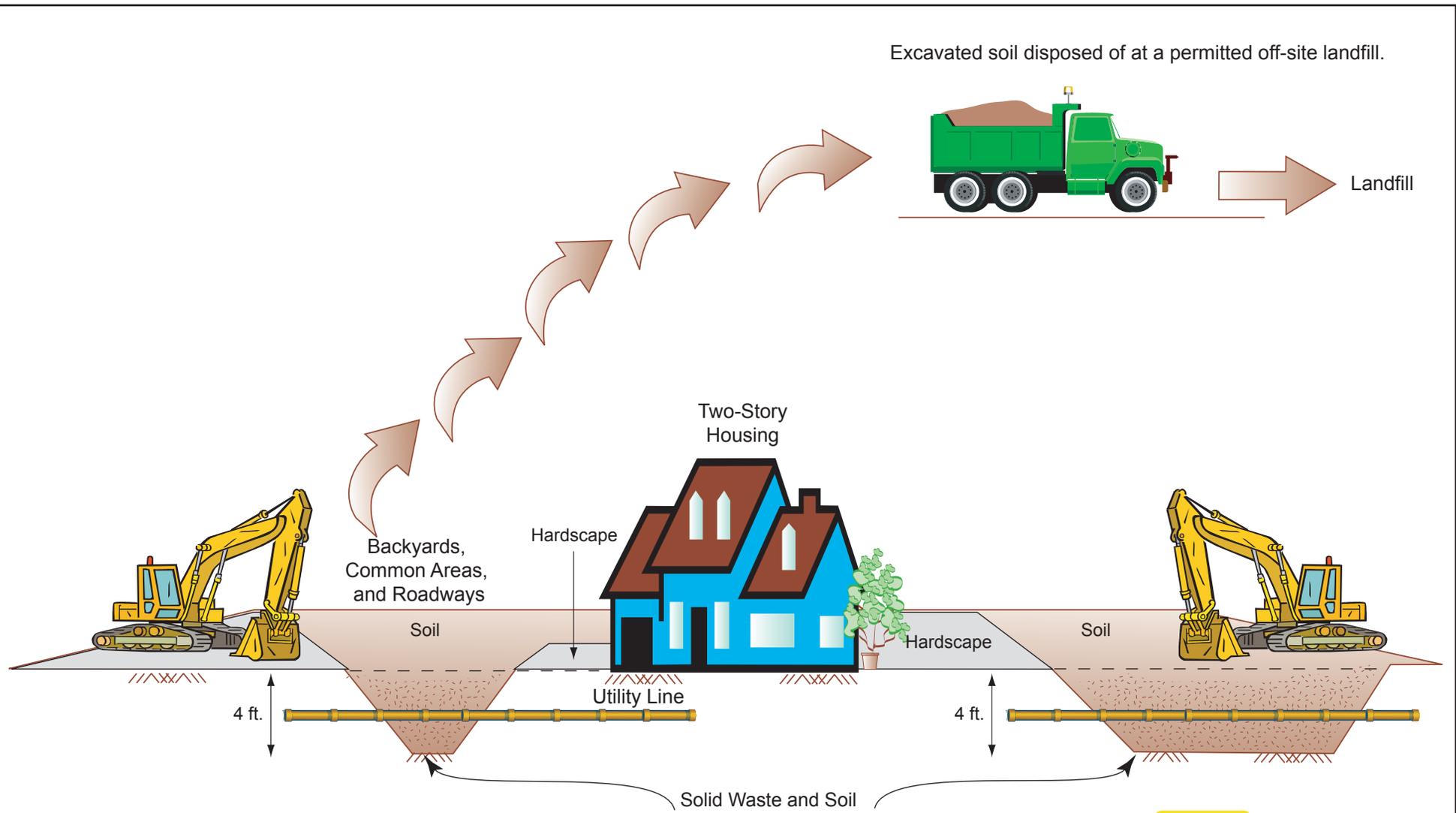


Naval Station Treasure Island, California
 Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 3

SITE FEATURES MAP

AM/IRAP: Non-Time-Critical Removal Action for
 SWDAs, Installation Restoration Site 12



Excavated soil disposed of at a permitted off-site landfill.



Landfill

Two-Story Housing

Backyards, Common Areas, and Roadways

Hardscape

Soil

Hardscape

Soil

4 ft.

4 ft.

Utility Line

Solid Waste and Soil



1. Excavate backyard and common areas (excluding hardscape) to 4 feet
2. Excavation of methane-affected areas
3. Backfill with clean soil
4. Dispose of excavated soil at an off-site landfill

Note: Hardscape includes driveways and sidewalks

Naval Station Treasure Island, California
Department of the Navy, BRAC PMO West, San Diego, California

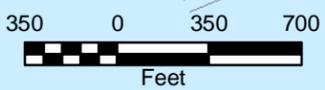
FIGURE 4
EE/CA REMOVAL ACTION
ALTERNATIVE 3

AM/IRAP: Non-Time-Critical Removal Action for SWDAs, Installation Restoration Site 12



San Francisco Bay

San Francisco Bay



- INSTALLATION RESTORATION SITE 12
 - BUILDING
 - WATER
 - ROAD
 - TRUCK ROUTE (18-WHEEL TRUCKS)
 - DUMP TRUCK ROUTE (SMALL ENOUGH TO NOT AFFECT TRAFFIC)
 - REMOVAL ACTION SWDA
 - CLEAN FILL STOCKPILE AREA
 - WASTE AND CLEAN SOIL STOCKPILE AND TRUCK LOADING AREA
 - TRUCK LOADING AREA FOR DEBRIS AREA
 - TRUCK STAGING AREA
- NOTE:
SWDA = SOLID WASTE DISPOSAL AREA



Naval Station Treasure Island, California
Department of the Navy, BRAC PMO West, San Diego, California

FIGURE 5

TRUCK STAGING AND ROUTE MAP

AM/IRAP: Non-Time-Critical Removal Action for SWDAs, Installation Restoration Site 12

TABLES

TABLE 1: CHEMICAL-SPECIFIC^A APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

AM/IRAP: NTCRA for Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Area, NAVSTA TI, San Francisco, California

| Requirement | Prerequisite | Citation ^b | ARAR Determination | Comments |
|---|---|---|--------------------------|---|
| SOIL | | | | |
| Federal Requirements | | | | |
| Resource Conservation and Recovery Act (42 U.S.C., Chapter 82, §§ 6901–6991[i]) ^c | | | | |
| Defines RCRA hazardous waste. A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations. | Waste. | Cal. Code Regs. tit. 22, , §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 | Applicable | These requirements are applicable for determining whether any generated waste is RCRA hazardous. |
| LDRs prohibit disposal of hazardous waste unless treatment standards are met. | Hazardous waste land disposal. | Cal. Code Regs. tit. 22, § 66268.1(f) | Applicable | LDR requirements are applicable to the land disposal of any waste that is determined to be hazardous waste. |
| Toxic Substances Control Act (15 U.S.C., ch. 53, §§ 2601–2692)^c | | | | |
| This act regulates the storage and disposal of PCB remediation waste. There are three options: (1) self-implementing on-site cleanup and disposal; (2) performance-based disposal using existing approved disposal technologies; and (3) risk-based disposal. This act is applicable to soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 parts per million. | Soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 ppm. | 40 CFR § 761.61(a)(4) | Relevant and appropriate | This section is relevant and appropriate for the disposal of PCB contaminated soil. The DoN does not expect the concentrations of PCBs in soil to be greater than 50 ppm. |

TABLE 1: CHEMICAL-SPECIFIC^A APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

AM/IRAP: NTCRA for Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Area, NAVSTA TI, San Francisco, California

| Requirement | Prerequisite | Citation ^b | ARAR Determination | Comments |
|---|----------------------------------|--|---------------------------|---|
| SOIL (Continued) | | | | |
| State Requirements | | | | |
| Cal/EPA Department of Toxic Substances Control^c | | | | |
| Definition of “non-RCRA hazardous waste.” | Waste. | Cal. Code Regs. tit. 22, §§ 66261.22(a)(3) and (4), 66261.24(a)(2)–(a)(8), 66261.101, 66261.3(a)(2)(C) or 66261.3(a)(2)(F) | Applicable | These requirements are applicable for determining whether any waste is a non-RCRA state regulated hazardous waste. |
| State and Regional Water Quality Control Boards^c | | | | |
| Definitions of designated waste, nonhazardous waste, and inert waste. | Waste. | Cal. Code Regs. tit. 27, §§ 20210, 20220 and 20230 | Applicable | These requirements are ARARs for determining whether any waste is nonhazardous solid, designated, or inert waste, and therefore subject to further regulation. |
| California Integrated Waste Management Board^c | | | | |
| Controls release of methane. | Closure of a regulated landfill. | Cal. Code Regs. tit. 27, § 20921 | Relevant and appropriate. | This requirement provides that concentrations of methane gas must not exceed 1.25 percent by volume in air within on-site structures, and concentrations of migrating methane must not exceed 5 percent by volume in air at the facility property boundary. This requirement is applicable to the closure and post-closure care of a regulated landfill. Since the DoN is not closing a regulated landfill, this requirement is relevant and appropriate. |

TABLE 1: CHEMICAL-SPECIFIC^A APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

AM/IRAP: NTCRA for Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Area, NAVSTA TI, San Francisco, California

Notes:

| | |
|-----------------|--|
| a | Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables. |
| b | Only the substantive provisions of the requirements cited in this table are potential ARARs. |
| c | Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DoN accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of specific citations are considered potential ARARs. |
| § | Section |
| §§ | Sections |
| ARAR | Applicable or relevant and appropriate requirement |
| Cal. Code Regs. | <i>California Code of Regulations</i> |
| Cal/EPA | California Environmental Protection Agency |
| CFR | <i>Code of Federal Regulations</i> |
| DoN | U.S. Department of the Navy |
| EPA | U.S. Environmental Protection Agency |
| PCB | Polychlorinated biphenyl |
| PRG | Preliminary remediation goal |
| RCRA | Resource Conservation and Recovery Act |
| TCLP | Toxicity characteristic leaching procedure |
| U.S.C. | <i>United States Code</i> |

TABLE 2: LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

AM/IRAP: NTCRA for Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Area, NAVSTA TI, San Francisco, California

| Location | Requirement | Prerequisite | Citation ^a | ARAR Determination | Comments |
|---|--|--|---|--------------------------|--|
| Federal Requirements | | | | | |
| Coastal Zone Management Act (16 U.S.C. §§ 1451–1464)^b | | | | | |
| Within coastal zone | Conduct activities in a manner consistent with approved state management programs. | Activities affecting the coastal zone, including lands thereunder and adjacent shore land. | 16 U.S.C. § 1456(c) 15 CFR § 930 | Relevant and Appropriate | Removal alternatives will comply with the Coastal Zone Management Act. |
| State Requirements | | | | | |
| McAteer-Petris Act (California Government Code §§ 66600 through 66661)^b | | | | | |
| Within the San Francisco Bay coastal zone | Reduce fill and disposal of dredged material in San Francisco Bay, maintain marshes and mudflats to the fullest extent possible to conserve wildlife, abate pollution, and protect the beneficial uses of the San Francisco Bay. | Activities affecting the San Francisco Bay and 100 feet landward of the shoreline. | San Francisco Bay Plan at Cal. Code Regs. tit. 14, §§ 10110 through 11990 | Relevant and appropriate | The San Francisco Bay Plan is an approved state coastal zone management program. The DoN will continue to conduct its response actions in accordance with the goals of the San Francisco Bay Plan. |

Notes:

a Only the substantive provisions of the requirements cited in this table are potential ARARs

b Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DoN accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs

§ Section

§§ Sections

ARAR Applicable or relevant and appropriate requirement

CFR *Code of Federal Regulations*

DoN U.S. Department of the Navy

U.S.C. *United States Code*

TABLE 3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

AM/IRAP: NTCRA for Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Area, NAVSTA TI, San Francisco, California

| Action | Requirement | Prerequisite | Citation | ARAR Determination | Comments |
|--|--|--|---|---|---|
| EXCAVATION AND OFF-SITE DISPOSAL OF WASTE | | | | | |
| Federal Requirements | | | | | |
| Resource Conservation and Recovery Act (42 U.S.C., Chapter 82, §§ 6901-6991[i])^a | | | | | |
| On-site waste generation. | Definition of RCRA hazardous waste | Soil and water. | Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11 | Applicable | The requirements are applicable for determining whether any generated waste, such as the excavated soil and debris, is hazardous waste. |
| Storage of excavated soil and debris. | A generator may accumulate solid remediation waste for storage only up to 2 years, during remedial operations without triggering land disposal restrictions. | Hazardous remediation waste temporarily stored in piles. | 40 CFR § 264.554(d)(1)(i-ii) and (d)(2), (e), (f), (h), (i), (j), and (k) | Applicable and relevant and appropriate | These requirements are applicable for temporary staging of any RCRA waste prior to off-site disposal, and are relevant and appropriate to staging any waste that is not RCRA hazardous waste prior to off-site disposal. |
| Clean Air Act (42 U.S.C. § 7401 et seq.)^a | | | | | |
| Excavation. | Sets forth opacity limitations. | Excavation. | BAAQMD Regulation 6-302 | Applicable | This requirement is applicable for excavation. |
| Clean Water Act, as Amended (33 U.S.C., ch. 26, §§ 1251–1387)^a | | | | | |
| Excavation. | Construction that disturbs at least 1 acre must use best management practices to control stormwater discharges. | Construction activities at least 1 acre in size. | Clean Water Act § 402(p) 40 CFR § 122.44(k)(2) and (4) | Applicable | The DoN anticipates disturbing more than 1 acre in the performance of this removal action. The DoN will use the state general stormwater discharge permit, Order 99-08-DWQ, as TBCs for complying with these stormwater discharge requirements. |

TABLE 3: ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

AM/IRAP: NTCRA for Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Area, NAVSTA TI, San Francisco, California

| Action | Requirement | Prerequisite | Citation | ARAR Determination | Comments |
|--|--|----------------------------------|---|--------------------|---|
| EXCAVATION AND OFF-SITE DISPOSAL OF WASTE (Continued) | | | | | |
| State Requirements | | | | | |
| State Water Resources Control Board and Regional Water Quality Control Boards^a | | | | | |
| Excavation. | Requires best management practices to control stormwater discharges. | Construction on at least 1 acre. | State Water Resources Control Board Order 99-08-DWQ | TBC. | The DoN is not required to obtain a permit for on-site response actions conducted under CERCLA. The DoN will use the substantive requirements of this general stormwater discharge permit as TBCs for complying with the potential federal Clean Water Act ARARs requiring control of stormwater discharges at Clean Water Act § 402 and 40 CFR § 122.44(k)(2) and (4). |

Notes:

a Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the DoN accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered potential ARARs

b The Clean Air Act ARARs apply only to the alternatives involving excavation.

| | | | |
|-----------------|---|--------|--|
| § | Section | CWA | Clean Water Act |
| §§ | Sections | DoN | U.S. Department of the Navy |
| ARAR | Applicable or relevant and appropriate requirement | DOT | U.S. Department of Transportation |
| BAAQMD | Bay Area Air Quality Management District | DWQ | Division of Water Quality |
| Cal. Code Regs. | <i>California Code of Regulations</i> | RCRA | Resource Conservation and Recovery Act |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | TBC | To be considered |
| CFR | <i>Code of Federal Regulations</i> | U.S.C. | <i>United States Code</i> |

TABLE 4: COSTS ASSOCIATED WITH NON-TIME CRITICAL REMOVAL ACTIONAM/IRAP: NTCRA for Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Area
NAVSTA TI, San Francisco, California

| Task | Total Cost |
|---|---------------------|
| 1. Mobilization | \$871,732 |
| 2. Fencing | \$148,589 |
| 3. Radiological Soil Screening | \$97,000 |
| 4. Excavation | \$1,753,872 |
| 5. Confirmation Sampling | \$623,224 |
| 6. Transportation and Disposal | \$3,398,750 |
| 7. Demobilize | \$39,030 |
| 8. Institutional Controls (Remedial Design Phase) | \$35,000 |
| Direct Cost Subtotal | \$6,966,837 |
| Contingency and Insurance | \$1,733,242 |
| Total Direct Cost | \$8,700,079 |
| Escalation (3.2%) | \$278,403 |
| Total Escalated Direct Cost | \$8,978,482 |
| Indirect Cost (Construction Management Staff) | \$196,092 |
| Office Overhead, General and Administration, and Home Office Expense (15% of Indirect Cost) | \$29,414 |
| Indirect Cost Subtotal | \$225,506 |
| Design Cost (10% of Total Direct Cost) | \$870,008 |
| Total Indirect Cost | \$1,095,514 |
| Escalation (3.2%) | \$35,056 |
| Total Escalated Indirect Cost | \$1,130,570 |
| Total Capital Costs (Direct + Indirect) | \$10,109,052 |
| Profit (10%) | \$1,010,905 |
| Total Capital Costs | \$11,119,957 |
| Present Value of Total Operations and Maintenance Costs (30 years) | \$97,469 |
| Present Value of Periodic Costs (30 years) | \$36,967 |
| Total Present Value of Non-Time-Critical Removal Action | \$11,254,392 |

**ATTACHMENT 1:
ENGINEERING EVALUATION AND COST ANALYSIS FOR
SOLID WASTE DISPOSAL AREAS AT INSTALLATION RESTORATION SITE 12,
OLD BUNKER STORAGE AREA, NAVAL STATION TREASURE ISLAND,
SAN FRANCISCO, CALIFORNIA**

Note:

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**Revised Engineering Evaluation and Cost Analysis
Solid Waste Disposal Areas,
Installation Restoration Site 12,
Old Bunker Storage Area**

**Naval Station Treasure Island
San Francisco, California**

October 12, 2006

Prepared for:

**Base Realignment and Closure
Program Management Office West
San Diego, California**

Prepared by:

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Prepared under:

**Naval Facilities Engineering Command
Contract Number N68711-03-D-5104
Contract Task Order 129**

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ACRONYMS AND ABBREVIATIONS

| | |
|-----------------|---|
| § | Section |
| §§ | Sections |
| µg/dL | Microgram per deciliter |
| 40 CFR | Title 40 of the <i>Code of Federal Regulations</i> |
| AOC | Area of concern |
| ARAR | Applicable or relevant and appropriate requirement |
| ATSDR | Agency for Toxic Substances and Disease Registry |
| BAAQMD | Bay Area Air Quality Management District |
| BAP | Benzo(a)pyrene |
| Bay Plan | San Francisco Bay Plan |
| BCDC | Bay Conservation and Development Commission |
| BCT | BRAC Cleanup Team |
| bgs | Below ground surface |
| BRAC | Base Realignment and Closure |
| Ca-HSC | California Health and Safety Code |
| Cal. Code Regs. | <i>California Code of Regulations</i> |
| Cal/EPA | California Environmental Protection Agency |
| CCSF | City and County of San Francisco |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | Code of Federal Regulations |
| COC | Chemical of concern |
| COPC | Chemical of potential concern |
| CSM | Conceptual site model |
| DTSC | Cal/EPA Department of Toxic Substances Control |
| DWQ | Division of Water Quality |
| EE/CA | Engineering evaluation and cost analysis |
| EO | Executive Order |
| et seq. | And the following |
| EPA | U.S. Environmental Protection Agency |
| FS | Feasibility study |
| FSY | Former storage yard |
| HRA | Historical Radiological Assessment |
| IC | Institutional control |
| IR | Installation Restoration |
| IT | International Technology Corporation |

ACRONYMS AND ABBREVIATIONS (CONTINUED)

| | |
|-------------------|--|
| LEL | Lower explosive limit |
| mg/kg | Milligram per kilogram |
| NAVSTA TI | Naval Station Treasure Island |
| Navy | U.S. Department of the Navy |
| NCP | National Oil and Hazardous Substances Pollution Contingency Plan |
| ng/kg | Nanogram per kilogram |
| NTCRA | Non-time-critical removal action |
| O&M | Operations and maintenance |
| PA/SI | Preliminary assessment/site inspection |
| PAH | Polycyclic aromatic hydrocarbons |
| PCB | Polychlorinated biphenyl |
| PRA | Preliminary risk assessment |
| PRC | PRC Environmental Management, Inc. |
| PRG | Preliminary remediation goal |
| RAO | Remedial action objective |
| RAP | Remedial action plan |
| RAWP | Removal action work plan |
| RCRA | Resource Conservation and Recovery Act |
| RI | Remedial investigation |
| ROD | Record of Decision |
| Shaw | Shaw Environmental, Inc. |
| Site 12 | IR Site 12, Old Bunker Storage Area |
| SLERA | Screening-level ecological risk assessment |
| SWDA | Solid waste disposal area |
| TBC | To be considered |
| TCRA | Time-critical removal action |
| Tetra Tech | Tetra Tech EM Inc. |
| TEQ | Toxicity equivalent |
| TI | Treasure Island |
| tit. | Title |
| TPH | Total petroleum hydrocarbons |
| UCL ₉₅ | 95th Percentile of the upper confidence limit on the arithmetic mean |
| UEL | Upper explosive limit |
| VOC | Volatile organic compound |
| YBI | Yerba Buena Island |
| yd ³ | Cubic yard |

EXECUTIVE SUMMARY

This revised Engineering Evaluation and Cost Analysis (EE/CA) report summarizes the EE/CA process, characterizes the site, identifies removal action objectives, describes and analyzes removal action alternatives, and provides a comparative analysis of the alternatives for the four known Solid Waste Disposal Areas (SWDAs) at Installation Restoration (IR) Site 12, Old Bunker Storage Area (Site 12), at the former Naval Station Treasure Island (NAVSTA TI). This report was prepared in accordance with current U.S. Environmental Protection Agency (EPA) and U.S. Department of the Navy (Navy) guidance documents for a non-time-critical removal action.

SITE BACKGROUND

Site 12 is located on the northwestern portion of the island. Site 12 is also known as the “Old Bunker Area” because, from the 1940s to the 1960s, ammunition was stored in bunkers in the area. Based on previous reports and historical information, four SWDAs have been identified within Site 12: SWDA A&B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court. Solid waste material included ceramics, wood, glass, metals, and petroleum products, with some of the material burned prior to disposal. The primary chemicals of concern within these disposal areas are dioxins, lead, polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAH). Areas of elevated methane concentrations within the SWDAs are also of concern.

Beginning in the 1960s, the ammunition bunkers were removed from Site 12 and the area was graded for construction of Navy housing. Grading and site preparation for construction of the housing units included mixing and spreading of the solid waste material with fill and near-surface soil, both within and outside of the known SWDAs.

The proposed reuse for Site 12 identified in the Draft NAVSTA TI Reuse Plan is for residential, open space, and publicly-oriented uses ([City and County of San Francisco 1996](#)). The land use of surrounding areas (or property) includes a public school and various commercial/industrial uses.

REMOVAL ACTION OBJECTIVE

The presence of chemicals mixed with solid waste in soil within the SWDAs at Site 12 presents a potential risk for current and future residents and utility workers due to the expected uses of the areas within the SWDAs. The expected uses of backyards and common areas include light recreational activities by residents and visitors and as walking paths between apartment units. Light recreational activities for children include unstructured play and informal games such as throw-and-catch and soccer. Expected activities of adults include participating in children’s games, jogging, and supervising young children. The child and adult residents participating in these activities might be exposed to soil through incidental ingestion of soil, dermal contact with soil, and inhalation of dust particulates released from soil to ambient air. Utility workers might be exposed to soil while digging around and servicing utilities. Utilities within Site 12 are known to be located as deep as 4 feet below ground surface (bgs).

The potential risk to human health at Site 12 does not warrant an emergency or time-critical removal action because the SWDAs areas are fenced or interim controls are in place to restrict contact with potentially contaminated soil.

The proposed removal action would be undertaken under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 of the Code of Federal Regulations, Part 300), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and California Health and Safety Code Section 25323. All of these regulations define removal actions as the cleanup or removal of released hazardous substances, actions to monitor the threat of release of hazardous substances, and actions to mitigate or prevent damage to public health or welfare or the environment. The proposed removal action is intended to be consistent with the final remedy for the SWDAs at Site 12.

Based on CERCLA and the NCP, the removal action objective is to restrict the pathway and reduce the potential for a resident or utility worker to contact chemical- contaminated soil near the ground surface (0 to 4 feet bgs) within the SWDAs at Site 12 under the current land use configuration.

REMEDIAL ACTION LEVELS

The following criteria are considered to be action levels for excavation within the SWDAs:

- Lead – the EPA Region 9 risk-based residential preliminary remediation goals for lead in residential soil of 400 milligrams per kilogram (mg/kg) will be used as the action level.
- PCBs – the concentration in soil of 1 mg/kg is the site-specific criterion.
- PAHs – the concentration in soil at the benzo(a)pyrene equivalent concentration of 0.62 mg/kg is the site-specific criterion.
- Dioxin – the NAVSTA TI ambient toxicity equivalent (TEQ) concentration in soil of 12 nanograms per kilogram (ng/kg) will be used as the action level.
- Solid waste-contaminated soil – visual observations of staining will be used to verify that solid waste – contaminated soil is removed laterally.

REMOVAL ACTION ALTERNATIVES

Five removal action alternatives were developed to address potential human health risks associated with chemical- and solid-debris -contaminated soil within the SWDAs:

- Alternative 1: Soil excavation to 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility to a maximum of 4 feet bgs. Soils below hardscape such as, sidewalks and driveways will not be excavated. Soils beneath roadways will be excavated.

- Alternative 2: Soil excavation to 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility to a maximum of 4 feet bgs. Soils below hardscape and unpaved areas including roadways will be excavated.
- Alternative 3: Soil excavation to 4 feet bgs. Soils below hardscape such as sidewalks and driveways will not be excavated. Soils beneath roadways will be excavated
- Alternative 4: Soil excavation to 4 feet bgs. Soils below hardscape and unpaved areas including roadways will be excavated.
- Alternative 5: Capping

A common component of all alternatives would be implementation of engineering and institutional controls (ICs) after the removal action because contaminated soil would remain in-place either below the chosen alternative excavation depths or beneath buildings or hardscape.

COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

A comparative analysis of chemical- and solid waste-contaminated soil removal actions was conducted to evaluate the relative performance of each alternative. Each alternative was evaluated considering the NCP criteria of overall protectiveness of human health; compliance with applicable or relevant and appropriate requirements; long-term effectiveness; reduction of mobility, toxicity, or volume through treatment; short-term effectiveness; implementability; and cost.

Each alternative for the known SWDAs would (1) restrict the pathway and reduce the potential for a resident to contact soil contaminants (protective of human health), (2) be implementable, and (3) comply with applicable or relevant and appropriate requirements.

Although less protective than Alternative 4, Alternatives 1, 2, 3, and 5 would provide adequate protection to human health and the environment while relying more upon ICs.

Alternatives 3, 2, 5, and 1 (in a descending order of long-term effectiveness) are less effective than Alternative 4 due to the decreasing volume of soil to be excavated and the increasing reliance on ICs to prevent exposure. Since Alternative 3 and Alternative 4 excavation areas are similar in size and excavation volume, Alternative 3 offers a comparable high degree of effectiveness as Alternative 4.

Under all alternatives, the volume and toxicity of chemical- and solid waste-contaminated soil would not be reduced through treatment, although the on-site volume of contaminated material would be reduced in Alternatives 4, 3, 2, and 1 in a descending order. Alternative 5 would not reduce the on-site volume of contaminated soil, but would reduce the mobility of chemicals and solid waste left on site by construction of caps over the SWDAs.

Alternative 5 would be the easiest to implement because it does not require extensive excavation from the SWDAs. Alternatives 1 through 4 may involve hand digging around utilities located within their respective areas of excavation. Alternative 4 would be more difficult to implement than the other alternatives, because it requires the most excavation in the SWDAs.

Before the Navy chooses a preferred alternative, regulatory agency and public input is necessary. The public will have an opportunity to review and comment on the revised EE/CA during a public comment period. State and community acceptance will be evaluated after the public comment period.

A comparative analysis of the costs is presented in the table below:

| Alternative | Description | Excavated Area (ft ²) | Estimated excavation Volume (cy) | Cost Opinion (in millions) |
|-------------|---|-----------------------------------|----------------------------------|----------------------------|
| 1 | Soil excavation to 2 feet bgs including beneath roadways. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet. Soils below concrete hardscape will not be excavated. | 209,160 | 15,493 | \$7.3 |
| 2 | Soil excavation to 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet. Soils below hardscape will also be excavated. | 228,127 | 16,898 | \$7.9 |
| 3 | Soil excavation to 4 feet bgs. Soil excavation beneath utilities and roadways up to a maximum depth of 4 feet, excluding concrete hardscape. | 209,160 | 30,987 | \$11.2 |
| 4 | Soil excavation to 4 feet bgs including roadways and concrete hardscape. | 228,127 | 33,796 | \$12.3 |
| 5 | Capping | 209,160 | 3,231 | \$3.6 |

Notes:

bgs Below ground surface
 cy Cubic yard
 ft² Square feet

REGULATORY AGENCY AND PUBLIC PARTICIPATION

The Navy will hold a 30-day public comment period and a public meeting to present the revised EE/CA and solicit comments from residents of Treasure Island and other interested members of the public. Comments by California regulatory agencies and the community will be evaluated with other required selection criteria after the 30-day public comment period for the revised EE/CA. The Navy will identify the preferred alternative selected for the removal action in an Action Memorandum, which also will contain a responsiveness summary discussing all comments received on the revised EE/CA during the public comment period. A 30-day public notice period will be placed in a local newspaper of wide distribution announcing the availability of the Action Memorandum.

1.0 INTRODUCTION

This revised Engineering Evaluation and Cost Analysis (EE/CA) addresses the four known Solid Waste Disposal Areas (SWDAs) at Installation Restoration (IR) Site 12, Old Bunker Storage Area (Site 12), at the former Naval Station Treasure Island (NAVSTA TI), San Francisco, California (see [Figure 1-1](#)). Site 12 is located on the northwestern portion of Treasure Island (TI) and occupies about 93 acres of the island. Site 12 is a flat area, characterized by lawns (common areas), roadways, and about 900 housing units and associated backyards. Based on previous reports and historical information, four SWDAs have been identified within Site 12: SWDA A&B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court.

1.1 DESCRIPTION OF THE NON-TIME-CRITICAL REMOVAL ACTION AUTHORITY AND THE PURPOSE OF THE ENGINEERING EVALUATION/COST ANALYSIS

The purpose of a non-time-critical removal action (NTCRA) is to conduct action that reduces a threat to human health or the environment. The purpose of this EE/CA is to develop, compare, and evaluate removal action alternatives for a NTCRA. The planned removal action is intended to address only the four SWDAs of Site 12 and to be consistent with the final remedy for these SWDAs. Upon completion of the removal action, the primary risk to residents and utility workers from SWDA contaminants will be significantly reduced for the current land configuration. The final remedy to address any remaining risk will be selected through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial Investigation (RI) and Feasibility Study (FS) process.

CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (Title 40 of the *Code of Federal Regulations* [40 CFR] Part 300) define removal actions to include the following:

“The cleanup or removal of released hazardous substances from the environment, such actions as may necessarily be taken in the event of the threat of release of hazardous substance into the environment, such action as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal of removal material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release.”

This revised EE/CA evaluates proposed removal action alternatives that are intended to reduce the likelihood of human exposure to chemical- and solid waste-contaminated soil in the four SWDAs at Site 12.

The U.S. Environmental Protection Agency (EPA) has classified removal actions into three types, based on the circumstances surrounding the release or threat of release:

- An emergency removal action, where on-site cleanup activities are initiated within hours of the verification of a release or threat of a release and on-site cleanup activities are completed within 30 days.

- A time-critical removal action (TCRA), where based on the site evaluation, a period of 6 months or less exists before on-site removal activities must be initiated.
- A NTCRA, where the on-site action will be taken more than 6 months after commencement of the planning period.

In addition to this revised EE/CA, the California Health and Safety Code (Ca-HSC) specifically requires preparation of documentation for planned removal actions. The type of documentation required depends on the projected cost of the removal action. The Ca-HSC requires development of a remedial action plan (RAP) for removal actions that cost \$1 million or more or a removal action work plan (RAWP) for removal actions projected to cost less than \$1 million. Further, the Ca-HSC authorizes the California Environmental Protection Agency (Cal/EPA), Cal/EPA Department of Toxic Substances Control (DTSC), to waive RAP requirements in favor of a RAWP for removal actions taken in response to an imminent or substantial endangerment determination. DTSC also may waive RAP requirements of Ca-HSC Sections 25356.1(d)(1) through (6) if a RAWP document is prepared that meets the requirements of Ca-HSC Section 25356.1(h)(3).

This revised EE/CA for a NTCRA at four SWDAs within Site 12 addresses the required evaluation of each removal action alternative for implementability, effectiveness, and costs, along with applicable regulatory agency requirements. The Navy is the lead federal agency for Site 12 removal actions. As the lead agency, the Navy has the authority to select the alternative, considering public and regulatory agency comments. The Navy is working in cooperation with DTSC, EPA, the California Integrated Waste Management Board, and the Regional Water Quality Control Board to implement this removal action.

1.2 SCOPE OF THE ENGINEERING EVALUATION/COST ANALYSIS

The revised EE/CA only addresses the four SWDAs within Site 12. These SWDAs were identified through evaluation of historical site data (aerial photographs, reports, and construction drawings) and site investigation (trenching, borings, inspection, and sample collection). The four SWDAs consist of SWDA A&B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court. [Figures 1-2, 1-3, and 1-4](#) show each of these areas. The SWDAs were discovered during the initial portion of the RI of Site 12 in 1997 (PRC Environmental Management, Inc. [\[PRC\] 1997](#)) and during a later field investigation in 1999 (Tetra Tech EM Inc. [\[Tetra Tech\] 1999a](#)). The four SWDAs include 18 buildings, 62 backyards and about 3 acres of common landscaped areas between and around the buildings, referred to as “common areas.” Both the backyards and common areas are partially covered by paved surfaces such as concrete patios, sidewalks and driveways. These paved areas are referred to as hardscape. Because roadways within the SWDAs do not provide adequate protection from underlying soil, roads within the SWDAs are not considered part of the hardscape. The SWDAs are located along the northern and western portions of Site 12, as well as in Bigelow Court, in the central portion of the site. Excluding Buildings 1205, 1211, 1213, 1235, 1237, and 1325, residential structures within the SWDAs are unoccupied ([Figure 1-2](#)). Interim measures and rental agreement house rules are currently in place to protect the residents of occupied buildings ([Section 2.6.3](#)).

A fence currently encloses each backyard in the 1100-, 1200-, and 1300-series buildings. Residential buildings outside of the SWDAs are primarily occupied.

Areas outside of the SWDAs are excluded from this revised EE/CA, and they will be further evaluated as part of the IR Program for Site 12. The RI and FS process will evaluate potential human health and ecological risks, and will develop any necessary remedial alternatives for these areas.

1.3 DESCRIPTION OF THE SITE HISTORY AND CONCEPTUAL MODEL

When TI was originally constructed for the 1939 to 1940 Golden Gate International Exposition, most of the Site 12 area was used as a parking lot for the exposition. After the Navy took control of the property in late 1940s and until the 1960s, the area was used for bunker storage of ammunitions and other materials, vehicle equipment and storage, recreational playing fields, and disposal and burning of solid waste. Both trench-type disposal units and general SWDAs were constructed and used for the disposal of materials such as loose rubbish, bottles, wire rope, paper, and steel drums. [Figures 1-2, 1-3, and 1-4](#) show each of these areas. Disposal of household waste, construction debris, trash incinerator ash, and sandblast grit is suspected to have also occurred in these areas.

These operations resulted in the release of dioxin, lead, polychlorinated biphenyls (PCB), and polycyclic aromatic hydrocarbons (PAH) into the surface soils (0 to 4 feet below ground surface [bgs]) of Site 12. Based on information to date, the primary areas of release are the four SWDAs (see [Figures 1-2 through 1-4](#)). Results for soil gas investigations conducted at Site 12 between June 2000 and January 2002 indicated that utility gas lines and buried debris may have contributed to methane contaminations in soils within the SWDAs. In January 2002, the Navy capped the natural gas pipeline in the SWDAs, allowed any remaining gas in the pipe to dissipate, and then resampled locations along the line. Analysis of samples from two locations ([Figure 1-3](#)), near Buildings 1319 and 1321, continued to produce methane results exceeding the screening criterion ([Tetra Tech 2003](#)).

Beginning in the 1960s, the ammunition bunkers were removed from Site 12 and the area was graded for construction of Navy housing. Grading and site preparation for construction of the housing units included mixing and spreading of the solid waste material with fill and surface soil, both within and outside of the known SWDAs ([Appendix A](#)).

[Figure 1-5](#) was developed to graphically depict the conceptual site model (CSM). This figure conceptually shows the historical features that relate to the release and distribution of solid waste and hazardous substances in Site 12. The CSM was developed from review of historical aerial photographs and construction documents.

1.4 SITE CHARACTERIZATION

Based on the sampling data available at the time and the known historic uses of the Site 12 property, the Navy initially found the property suitable to lease in 1997. Subsequently, the Navy completed several phases of site investigation (most recently in October 2003) in an attempt to characterize the nature and extent of any soil contaminants. The results of the investigations to date for dioxin, lead, methane, PCBs, and PAHs are provided in [Appendix B](#).

Initial investigation activities (RI Phase I in 1992 and Phase IIB in 1995) focused primarily on total petroleum hydrocarbons (TPH) and metals. Results from the sampling revealed areas contaminated with metals and TPH. Further investigation occurred in 1996 and 1997 ([PRC 1997](#)). The additional investigations were targeted in suspected solid waste burn pit areas and on a grid pattern across Site 12. The results of the additional investigations revealed areas with the heaviest lead and TPH contamination were within the SWDAs. Potential risk from TPH is considered to be low and will be further evaluated in the RI Report.

During a June 1999 removal action in a SWDA near Buildings 1207 and 1209, the Navy discovered the contaminated area was larger than previously concluded. As a result, additional investigation activities were conducted to better delineate these areas. The additional investigation used trenching, rather than the previously used direct-push drill sampling to provide better visual delineation.

Results for soil gas investigations conducted at Site 12 between June 2000 and January 2002 indicated that utility gas lines and buried debris may have contributed to the methane-impacted area within the SWDAs ([Tetra Tech 2003](#)).

From August to October 2003, the Navy conducted an additional investigation in the common areas (Shaw Environmental, Inc. [[Shaw](#)] 2004). The additional information obtained from this investigation enabled the Navy to refine the boundaries of the SWDAs.

1.5 POTENTIAL THREATS TO HUMAN HEALTH FROM SWDA CONTAMINANTS

Initially, the Navy developed action levels for lead, PCBs, and PAHs in soil based on a residential exposure scenario ([Tetra Tech 2002b](#)). Action levels for dioxin in soil are based on ambient levels ([DTSC 2004b](#)), while the action level for methane gas is based on Title 27, *California Code of Regulations* (Cal. Code Regs.), Section 20921 requirement for indoor air (Cal. Code Regs., tit. 27, Section [§] 20921). The maximum depth associated with potential exposure to soil is based on a utility worker having to dig to 4 feet bgs to access a utility line, although contaminated soil may exist below this depth. Based on the action levels, the following is a preliminary screening level risk evaluation to determine whether this removal action in the SWDAs is warranted.

1.5.1 Lead Contamination

Lead concentrations in surface soil (0 to 4 feet bgs) exceed the action level of 400 milligrams per kilogram (mg/kg) for residential scenarios, indicating a possible risk to human health (Figures B-1 and B-2 in Appendix B).

1.5.2 Polychlorinated Biphenyl and Polycyclic Aromatic Hydrocarbon Contamination

PCBs are present in surface soils at concentrations above the action level of 1 mg/kg. PAHs are also present in surface soils within Site 12 at concentrations that exceed the benzo(a)pyrene (BAP) equivalent action level of 0.62 mg/kg, indicating a possible risk to human health (Figures B-3 through B-7, Appendix B).

1.5.3 Dioxin and Methane Contamination

Dioxins are present in surface soils within Site 12 at toxicity equivalent (TEQ) concentrations above the TEQ ambient level of 12 nanograms per kilogram (ng/kg). The action level for dioxin TEQ is based on the established ambient level for NAVSTA TI (Figures B-7 and B-8, Appendix B).

Methane was observed in surface soils within SWDA A&B at concentrations above the action level of 0.125 percent used in the 2002 soil gas investigation (Tetra Tech 2003). Methane exceedances appear to exist only around Building 1319 in the SWDA. The lower explosive limit (LEL) of methane corresponds to methane levels of 5 percent methane per volume in air (percent methane/v). At concentrations below the LEL, the methane/air mixture is too dilute (methane concentrations are too low) to ignite. Any concentration between the LEL and the upper explosive limit (UEL) of methane has the right combination of methane and air to cause combustion of the gas (U.S. EPA 1991) if a source of ignition is available. Methane concentrations above the UEL (>15 percent/v) are too rich (oxygen levels are too low) to support combustion. To sustain a flame, oxygen levels have to be at or above 19 percent. Methane does not have any known toxicological effects according to the U.S. EPA Integrated Risk Information System database (EPA 2005) or State of California Office of Environmental Health Hazard Assessment's toxicological database (DTSC 2004a). Risks associated with exposure to methane gas are likely to affect receptor health and safety (e.g., from explosions) before toxicological effects become a concern for residential receptors. Therefore, Title 27 requirements (methane concentrations of 5 percent by volume in air) are sufficient to protect the receptors on-site. Methane would be detected using an intrinsically safe flame ionization detector during the excavation process in the methane-impacted areas. The excavation in these areas would be conducted following strict health and safety protocols. After the excavated methane-impacted areas are backfilled, temporary wells will be installed and groundwater sampling will be conducted. If groundwater sampling demonstrates that methane may exist at elevated concentrations, then a soil gas investigation will be conducted. Soil gas samples will be collected and analyzed for methane after the excavation has been backfilled.

The Navy concluded that a NTCRA for chemical- and solid waste-contaminated soil present within the SWDAs at Site 12 should be taken to reduce the risk of potential human exposure to hazardous substances detected in the soil. This decision was based on the site history, success of SWDA investigations in delineating the locations of contaminants, and the presence of potential threats to human health at Site 12.

1.6 PLANNED REMOVAL ACTION TO ACHIEVE HIGH LEVEL OF PROTECTION FOR HUMAN HEALTH

CERCLA and the NCP define removal actions to include actions that may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release. For Site 12, the site history and soil investigation results show that distribution of hazardous substances with quantities or levels of concern are confined primarily to the SWDAs. Because of the current and planned occupancy of housing units within the SWDAs at Site 12, the Navy has concluded that a NTCRA is necessary to reduce the risk of potential human exposure to hazardous substances within the SWDAs at Site 12.

Five removal action alternatives were developed and evaluated for the SWDAs. Per CERCLA and the NCP, the Navy evaluated the overall effectiveness, implementability, and cost of each alternative.

The public is encouraged to review and comment on the proposed removal action alternatives described in this EE/CA. This document may be reviewed at the following locations:

Base Realignment and Closure
Project Management Office West Detachment
410 Palm Avenue
Building 1, Room 161
San Francisco, CA 94130
(415) 743-4704

San Francisco Public Library
Government Publications Section
100 Larkin Street
San Francisco, CA 94102
(415) 557-4400

2.0 SITE DESCRIPTION AND BACKGROUND

This section summarizes background information from previous reports, including the *Draft RI Report Site 12 Operable Unit* (Tetra Tech 1999a). In addition, a detailed review of the historical aerial photographs was conducted and is summarized in the following sections. In many cases, the aerial photographs were stereo-pairs, that when viewed with a stereoscope revealed three-dimensional features such as depressions or mounds on the ground surface. Selected aerial photographs that show historical features are presented in [Appendix C](#).

The following sections summarize: (1) site location and historic operations, (2) surrounding land use and proposed reuse, (3) site geology and hydrogeology, (4) regional ecology, and (5) climate and meteorology.

2.1 SITE LOCATION AND HISTORIC OPERATIONS

NAVSTA TI lies in San Francisco Bay, midway between San Francisco and Oakland, California. The naval station consists of two contiguous islands. The northern island, TI, encompasses about 403 acres and the southern island, Yerba Buena Island (YBI), encompasses about 147 acres. TI is a manmade island constructed of sediment dredged from the San Francisco Bay; YBI is a natural island. In 1993, NAVSTA TI was designated for closure under the Base Realignment and Closure (BRAC) Act of 1990. The base was closed on September 30, 1997, and is being transferred to the City and County of San Francisco for reuse.

Site 12, the Old Bunker Area, is located on the northwestern portion of TI and occupies about 93 acres of the island ([Figures 1-2 and 1-5](#)). Site 12 is currently the TI housing area. Site 12 is a flat area, consisting of grassy lawns, roadways, and residential housing units with backyards. Fenced backyards exist for the 1100, 1200, and 1300 series housing but not the 1400 series. These units simply have backdoors that open onto grassy common areas.

Throughout the 1940s, 1950s, and 1960s, ammunition was stored in bunkers located around Site 12. As early as 1945, nine large ammunition bunkers and 12 smaller bunkers were visible along the northern end of TI. These bunkers were constructed in 1944 as reinforced concrete structures covered by sand, with a chert rock and clay surface. A backfilled blast wall, the same height as the bunkers, existed along the open side of the structures. Findings from soil trenching and boring activities performed before the 1965 housing foundation excavations indicated that the areas between and around the bunkers were used for solid waste disposal.

Both trench-type disposal units and general SWDAs were constructed and used for the disposal of materials such as loose rubbish, bottles, wire rope, paper, and steel drums. These areas have been combined into four identified SWDAs, currently known as SWDA A&B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court. All the identified SWDAs are evaluated as part of this EE/CA. [Figures 1-2, 1-3, and 1-4](#) show each of these areas. Disposal of household waste, construction debris, trash incinerator ash, and sandblast grit is suspected to have also occurred in these areas. The household waste and portions of the construction debris

would have been burned or degraded with air exposure over the years. Photographs of debris encountered are shown in [Appendix D](#).

Aerial photographs from 1931 to 1975 were used to identify debris disposal areas on the island ([EPA 1995](#)). The first noticeable debris disposal areas at Site 12 were located at what is now known as SWDA A&B and SWDA 1207/1209. Site investigations as described in [Section 2.6](#) were then performed to confirm the absence or presence of debris or specific chemicals of potential concern (COPC).

Aerial photographs showed that the SWDAs continued to expand until the late 1940s. Burn pits or stained areas that could include burn pits were visible periodically throughout Site 12. In 1950, the area between the northeastern ammunition bunkers was developed into a waste disposal area, now known as SWDA 1231/1233. Three known SWDAs (A&B, 1207/1209, and 1231/1233) were adjacent to the shoreline and located along the shoreline perimeter of Site 12. In the 1958 aerial photograph, EPA identified a trash incinerator around SWDA 1231/1233 ([EPA 1995](#)). SWDA Bigelow court was identified during sampling activities in 2001 (International Technology Corporation [\[IT\] 2002](#)).

During most of the 1950s, debris disposal areas remained visible in aerial photographs ([Appendix C](#)). Earthwork practices and bulldozing could have been used to separate, grade, and downsize areas that collected too much debris, even before housing construction took place in the 1960s. Aerial photographs clearly show SWDA A&B increasing in size over the years. Smaller debris mounds located in earlier photographs are not present in later photographs suggesting that some areas were not used for long-term disposal. However, significant sampling ([Appendix B](#)) was undertaken in order to develop a comprehensive understanding of the site.

[Figure 1-5](#) was developed to conceptually display site features and history before and up to construction of the housing. The basis for development of this figure was analysis of the historical photographs and review of construction drawings for the housing development ([Section 1.3](#)).

2.2 SURROUNDING LAND USE AND PROPOSED REUSE

As of this date, the Treasure Island Development Authority has not developed a final reuse plan for NAVSTA TI. The proposed reuse for Site 12 identified in the Draft NAVSTA TI Reuse Plan (City and County of San Francisco [\[CCSF\] 1996](#)) is for residential/open space/publicly oriented uses. The surrounding land use includes a public school and various commercial/industrial uses.

2.3 SITE GEOLOGY AND HYDROGEOLOGY

Soils encountered in borings advanced to depths up to 15 feet bgs consist primarily of tan to grayish-brown, fine- to coarse-grained, loose sands, with some shell fragments and gravel. Solid waste, such as glass, ceramics, brick fragments, unspecified metal objects, shoe soles, film canisters, a paint bucket, a metal ladder, and a metal drum, were encountered in some borings

and trenches during previous investigations. Solid waste was encountered most commonly from 2 to 5 feet bgs in borings located near the northern and northwestern shorelines, in the vicinity of the SWDAs. Glass was by far the most frequently encountered type of solid waste.

The estimated depth to groundwater at Site 12 according to monitoring wells and logs for Hydropunch[®] borings drilled during the Phase IIB RI (PRC 1997) ranged from about 2.5 to 7.5 feet bgs. The water table is unconfined. Groundwater generally flows in a radial pattern from the center of TI to the shoreline. Perched groundwater conditions above the shallow water table exist locally because of the presence of relatively impermeable silt and clay lenses. Groundwater recharge occurs primarily from precipitation infiltration; with some contribution from irrigation and leaking storm drains (PRC 1993). Findings from previous investigations at TI have revealed tidally induced water table fluctuations of as much as 4.5 feet immediately adjacent to the TI seawall and as much as 2.25 feet at a distance of about 50 feet from the seawall (Harding Lawson Associates 1985). The groundwater at TI is not a potential source of drinking water pursuant to State Water Resources Control Board Resolution 88-63 and Regional Water Quality Control Board Resolution 89-39 (2001).

2.4 REGIONAL ECOLOGY

NAVSTA TI is a component of the San Francisco Bay estuary. An estuary is the lower, wide portion of a river, usually partially enclosed, and is where fresh water mixes with salt water. This area comprises the largest embayment on the Pacific Coast of the United States. San Francisco Bay is composed of many varied habitats, including deep waters, wetlands, and upland areas, which provide important staging and wintering areas for migratory waterfowl and shorebird populations of the Pacific Flyway (San Francisco Estuary Project 1992).

2.5 CLIMATE AND METEOROLOGY

The climate at NAVSTA TI is dominated by the Pacific Ocean, which produces a maritime climate characterized by little temperature variation. The average annual temperature is 56 to 58 degrees Fahrenheit, with an annual frost-free period ranging from 300 to 330 days.

The prevailing wind direction for the San Francisco Bay Area is from the northwest. Wind speed is less than 6 miles per hour for more than 50 percent of the time and exceeds 12 miles per hour for approximately 10 percent of the time. The strongest winds are associated with winter storms. In the winter, winds from the north and east sometimes bring low temperatures to the San Francisco Bay Area. Westerly winds predominate during the summer, when cool marine air flows east toward the warm Central Valley region of California. These winds are strongest in the late afternoon and early evening.

The average annual precipitation is about 25 to 30 inches. Approximately 90 percent of the annual precipitation occurs from November to April. Localized showers are infrequent, and storms are moderate in duration and intensity. Mean annual evaporation is 48 inches. The greatest evaporation occurs during July.

Relative humidity during the winter is approximately 50 to 60 percent during the day, increasing to approximately 80 to 90 percent at night. Humidity decreases in spring; however, by summer, it increases, particularly at night or in the morning, when frequent fogs occur. Humidity is lowest in the fall, ranging from approximately 50 percent during the day to 70 percent at night (Navy 1987).

2.6 PREVIOUS INVESTIGATIONS, REMOVAL ACTIONS, AND ACTIVITIES

This section summarizes soil and groundwater investigations and removal actions associated with soil contamination previously conducted at Site 12. Because contaminated soil exists below the water table in close proximity to San Francisco Bay, there is a potential for contaminants to reach ecological receptors in the Bay through groundwater movement. This potential exposure pathway to ecological receptors will be evaluated in the upcoming RI report.

2.6.1 Previous Soil Investigations

The Navy has conducted numerous investigations at Site 12 over the last several years. This section presents a chronological summary of site investigation activities.

1988

Site 12 was designated the “Old Bunker Area” during the 1988 preliminary assessment/site inspection (PA/SI) (Dames and Moore 1988). Site 12 was originally defined as the area primarily north of the elementary school, which is where the ammunition bunkers were located. No sampling was conducted for the PA/SI, but Site 12 was recommended for the RI phase because of the presence of housing and the potential for soil and groundwater contamination if the refuse was not completely removed during construction.

1990 to 1997

Because no PA/SI sampling was conducted and the housing was occupied, a preliminary risk assessment (PRA) of human health was conducted in 1991, prior to the initial RI sampling. The PRA was based on analytical results from grab samples of surface soil from common areas, including playgrounds and tot lots, throughout the housing area. Elevated concentrations of hazardous substances were not reported, and no further action was taken. During the RI, the site boundary was expanded to include a leg along the southwestern shoreline. The leg included an area south of Building 1306, but did not include the last three of the 1300-series buildings (1301, 1303, and 1305). The leg was added to account for a rubbish disposal area (later to be known as SWDA A&B) that was outside of the bunker area. None of the 200 residences of the 1400-series housing were included in this revised site boundary. The focus at that time was not on whether housing buildings were in or out of the site boundary but on what the boundary should be, based on the historical information known at that time.

1999

During the spring 1999 removal action of lead-contaminated soil at Buildings 1207/1209, solid waste from a former burn pit was also encountered. The Navy conducted additional investigations at other locations where buried material might exist. Because the original direct-push borings at Buildings 1207/1209 provided little evidence as to the quantity of burn pit material, the NAVSTA TI BRAC Cleanup Team (BCT) made a decision to switch from direct-push borings to trenching. Based on findings from subsequent trenching during the summer of 1999, three additional areas impacted by debris (Area A; Area B, including Building 1133; and Area 1231/1233) were identified. A separate investigation of the Former Storage Yard (FSY) area located just outside of the Site 12 boundary was conducted in the fall of 1999. The investigation was conducted with typical direct-push borings, because it targeted potential chemical releases from the FSY. At the time of the investigation, there was no historical information to indicate that any chemical releases had occurred, so it was primarily a due-diligence site investigation. However, the results revealed a release of PCBs and some elevated detections of PAHs, primarily in the Halyburton Court Area, but also extending into the Bigelow Court Area.

2000

In early August 2000, a resident reported to DTSC that debris was apparent in the backyard at a shallow depth. As a result of discussions between the Navy and DTSC, the yard was sampled. PCBs were detected at two locations in the backyard at concentrations above the preliminary remediation goal (PRG) but less than the 1.0 mg/kg action level. In addition, minor amounts of inert concrete and metal debris were observed. As a result of the sampling, in late August 2000, the Navy decided to collect samples in the backyards of buildings that were adjacent to the identified SWDAs, in this case Buildings 1205 and 1211 (Figure 1-4). There were no detections in the backyards of Building 1205 above screening criteria, but there were varied detections of lead, PCBs, and PAHs above the screening criteria in the four Building 1211 backyards that were sampled (two of the six backyards were not accessible and were not sampled). Based on discussions with DTSC and a meeting with the Building 1211 residents, it was decided to place an interim ground cover of sod in all of the Building 1211 backyards slated for occupancy.

In June 2000, the Navy collected soil gas samples from 70 locations within Site 12. The purpose of the shallow soil gas survey was to investigate the potential of volatile organic compound (VOC) and methane generation and migration within SWDA A&B and to determine the nature and extent of VOCs and methane suspected during field screening in previous intrusive investigations of Site 12. As a result of the investigation, it was determined that VOCs were present at concentrations that exceeded screening criteria in only one SWDA A&B location, near Building 1323. However, methane was detected at numerous locations in the SWDAs, as well as the Northpoint Drive and Gateview Avenue area. Further investigation, with the goal of determining the extent of contamination, was planned for 2001.

2001

The Navy conducted trenching and sampling at 11 buildings that were scheduled for leasing (Buildings 1117, 1246, 1248, 1252, 1254, 1401, 1408, 1410, 1411, 1412, and 1413). The Navy subsequently decided to include an additional four buildings (1101, 1103, 1105, and 1107) in the trenching and sampling program, because they were scheduled for future housing leases as well.

The sampling results identified three additional areas with elevated concentrations of contaminants: two were outside of any previously known area of contaminant detection (Buildings 1254, 1246, and 1248), and the third was adjacent to the PCB removal action in the FSY (Bigelow Court). Interim measures such as fencing off areas of known debris contamination and installation of cover in several backyards of occupied residents were also undertaken (IT 2002). Fencing was installed around SWDA A&B, SWDA 1207/1209, and SWDA 1231/1233. The fencing was chain link, 6 feet high, and backed with green plastic mesh "Enviroscreen." Enviroscreen was also installed along the existing chain-link fence, which borders the island perimeter roadway in the areas of known solid waste disposal. Warning signs were also posted roughly 200 feet spacing around the perimeter of the fenced areas. Backyards where samples exceeded criteria, the entire exposed area of the backyard was covered with either sod or concrete pavers, including areas already covered.

In May 2001, based on results from the June 2000 soil gas investigation, the Navy collected step-out soil gas samples in the SWDAs, as well as the Northpoint Drive and Gateview Avenue area. The results of this investigation showed the extent of the VOC contamination near Building 1323 and refined the area of known methane contamination. Upon review of the data, it became apparent that methane detections correlated closely with natural gas pipelines in both the SWDAs and the Northpoint Drive and Gateview Avenue area. As a result, the Navy prepared a plan to inspect and cap the natural gas pipelines, where possible, and resample these locations.

2002

In January 2002, based on results from previous soil gas investigations, the Navy capped the natural gas pipeline in the SWDA, allowed any remaining gas in the pipe to dissipate, and then resampled locations along the line (Tetra Tech 2003). The result of this investigation was that in the majority of the locations (including Building 1323) methane was no longer present at concentrations exceeding the screening criterion. Methane was deemed not to be of concern in those areas. Two locations, near Buildings 1319 and 1321, continued to produce methane results exceeding the screening criterion. The extent of methane contamination in these areas is defined, and will be addressed in this EE/CA.

The results from the soil gas investigation conducted in 2002 also showed elevated concentrations of 1,1,2,2-tetrachloroethane within soil gas samples collected from either side of the roadway, directly in front of Building 1323 (Tetra Tech 2003) with SWDA A&B. In addition, indoor air samples were collected from Building 1323 and the results indicated elevated concentrations of chloromethane but because of the relatively low concentrations of chloromethane detected in soil gas, soil gas does not appear to be a source of the chloromethane detected in indoor air at Building 1323 (Tetra Tech 2003). The forthcoming RI report will provide further analysis of the potential impact of chloromethane in this area.

2003

From September to October 2003, based on results from previous trenching and sampling investigations, the Navy conducted additional trenching, excavating 581 exploration trenches, seven step-out trenches and seven step-out hand auger locations and conducting sampling to evaluate potential risks to human health and make decisions about further remedial efforts at Site 12 (Shaw 2004). The investigation was limited to the common areas outside of the SWDAs, specifically excluding areas previously remediated, areas scheduled for future remediation, and hardscaped areas (streets, sidewalks, parking areas). The results of this investigation helped further refine the SWDA boundaries and provided relevant data for the RI report currently being prepared for Site 12.

2.6.2 Previous Ground Water Investigations

Groundwater monitoring was conducted in Site 12 between 1992 and 2004. The following areas within Site 12 have been monitored for groundwater contamination:

- SWDA 1207/1209
- SWDA A&B
- Building 1311/1313 Petroleum Area
- Mariner Drive Petroleum Area
- Solid Waste Disposal Area 1231/1233
- Former Storage Yard Area

Within SWDA A&B and SWDA 1207/1209, potential groundwater concerns have been identified. Contamination of groundwater in these areas is believed to have resulted primarily from former waste disposal and petroleum releases associated with the waste disposal. Analysis of the data from 2004 from sampling of groundwater monitoring wells in these SWDAs indicated that elevated concentrations of metals were detected in groundwater samples. Because of the close proximity to the San Francisco Bay, there could be a potential threat to ecological receptors in the Bay. This potential threat will be evaluated in the upcoming RI report.

2.6.3 Previous Removal Actions

Three removal actions relating to the SWDAs have occurred at Site 12. The first removal was conducted in the vicinity of Buildings 1207 and 1209, between the months of June and August, 1999. Sufficient contamination to warrant a remedial action had not been identified at SWDA A&B, and SWDA 1231/1233 had not yet been identified. Lead-contaminated soil was removed near Buildings 1207/1209, where there appeared to be a hot spot in a former burn pit area (Figure 1-4). About 2,200 cubic yards (yd³) of soil were excavated and replaced with clean fill. The Navy determined that a TCRA was necessary around these buildings to prevent possible exposure to contaminants. Other constituents, such as antimony, arsenic, and copper, as well as organic compounds, such as dioxins (detected at concentrations exceeding the PRG)

and TPH were also removed. These constituents were not determined to pose an unacceptable risk to human health or the environment (Tetra Tech 1999a).

The second removal action was conducted in the vicinity of Building 1133, which is within SWDA A&B, in November 1999. Because of the planned residential occupation of the Mason Court area, which included Building 1133, the Navy conducted a TCRA of lead-contaminated soil (Figure 1-3). About 3,100 yd³ of soil was excavated and replaced with clean fill. In conjunction with lead-contaminated soil, soil with other constituents such as TPH and inorganic compounds such as aluminum and copper, was also removed. The other constituents were detected at concentrations that would not by themselves warrant a removal action or pose an unacceptable risk to human health or the environment (Tetra Tech 1999b). No further removal actions are planned for the areas surrounding Building 1133, since these have already been addressed via the TCRA.

The third removal was conducted in the area of Halyburton and Bigelow Courts in July 2000. Historical records and aerial photographs helped identify this section of Site 12 as the FSY area of concern (AOC). This was performed as a TCRA during Summer 2000 in order to be completed before the opening of school in late August 2000. Most of the removal was in Halyburton Court, with additional removal on the eastern side of Bigelow Court and a small spot between Buildings 1411 and 1413 in Flounder Court (Figure 1-3). To date, this has been the largest removal on Site 12; about 11,300 yd³ of contaminated soil were excavated and replaced with clean fill. Soils in the FSY AOC contained concentrations of PCBs in excess of the 1.0 mg/kg action level and PAHs in excess of the 0.62 mg/kg, BAP equivalent site-specific action level. The Site 12 boundary was expanded to include the FSY.

In October 2000, the Navy met with DTSC and agreed to develop a plan for interim measures in the areas around the three SWDAs (A&B, 1207/1209, and 1231/1233), also taking into account the detections at Buildings 1211 and 1235. Interim measures were to consist of fencing and signage of vacant known debris areas. Additional trenching and sampling of occupied buildings outside of fenced areas were conducted in an effort to qualitatively evaluate the likelihood of the presence of hazardous substances in backyards at concentrations that exceeded screening levels, for the purposes of protecting residents from possible exposure. Vacant buildings within the SWDAs were fenced off in early January 2001. Interim trenching and sampling was conducted in March through May 2001. As the result of contamination discovered during sampling, an additional 12 backyards among Buildings 1213, 1235, and 1237 required ground cover (sod or concrete pavers). The ground cover was necessary to prevent possible exposure by a resident to soil until a more permanent remedy is selected.

All areas within the SWDAs that have been addressed via the above removal actions will not be addressed in this EECA.

2.7 SOURCE, NATURE, AND EXTENT OF CONTAMINATION

Based on the results of previous investigations, chemical- and solid waste-contaminated soil has been identified and the greatest concentrations occur in the four SWDAs. In some cases, contaminated soil has been removed and the discussion below takes this into account.

The four SWDAs were shown in [Figure 1-2](#). SWDAs A&B and Bigelow court are shown in greater detail in [Figure 1-3](#) while SWDAs 1207/1209 and 1231/1233 are shown in greater detail in [Figure 1-4](#). Solid waste, dioxin, lead, PCB, PAH, and soil gas sampling showed localized contamination in soil within the SWDAs. The SWDAs were identified from historical photographs, as well as site investigation data. Although extensive metals sampling in soil was conducted throughout Site 12, high concentrations of lead, above the EPA PRG of 400 mg/kg (EPA 2000), were located predominantly in identified SWDAs. Occasional concentrations of PAHs in excess of the BAP equivalent of 0.62 mg/kg were found in SWDAs 1231/1233, 1207/1209, A&B, and Bigelow Court. The BAP equivalent method is described in Office of Environmental Health Hazard Assessment guidance (1999). Chlordane was routinely detected around building foundations and was likely due to the routine application for termite control.

A series of figures included in [Appendix B](#) show the distribution of contamination at different locations and depths. These figures provide sampling locations and concentrations of dioxin, lead, methane, PCBs, and PAHs above action levels in soil from the ground surface to 2 feet bgs and from 2 to 4 feet bgs. As shown in the figures, contaminants that exceed action levels are located primarily within the SWDAs.

Pesticides generally were detected at random locations throughout Site 12 and do not appear to be associated with a specific source. Because of the apparent lack of a specific source of the pesticides at Site 12, a 95th percentile of the upper confidence limit on the arithmetic mean (UCL₉₅) was calculated for each constituent detected. The UCL₉₅ for each pesticide was less than the corresponding PRG (Tetra Tech 1999a).

2.8 RISK EVALUATION

A formal, quantitative risk assessment is currently ongoing for Site 12 as part of the site-wide RI phase. The following three steps were completed to evaluate the risk from the four SWDAs for this EE/CA:

- (1) The Navy developed soil action levels for dioxin, lead, PAHs, and PCBs for within the known SWDAs. The soil action levels were developed to aid in protecting against excessive exposure to chemicals in soil. Action levels for methane were developed for soil gas. The action levels will be used during excavation to establish lateral and vertical (up to a maximum depth of 4 feet bgs) boundaries.
- (2) The Navy conducted a screening level risk evaluation to assess the need for a removal action. Based on the risk screening results, the Navy concluded that a NTCRA was necessary to address contaminated soil remaining at known SWDAs (see [Figures 1-2 to 1-4](#)).
- (3) The Navy conducted a qualitative risk evaluation to assess the protectiveness of alternatives such as removing soil and backfilling with clean soil versus placement of a hard physical barrier. Additional details about the risk screening evaluations are presented in [Sections 2.8.4 through 2.8.7](#).

2.8.1 Soil Action Levels for Lead, PAHs, and PCBs

Risk-based action levels were developed for lead, PAHs, and PCBs in soils within the known SWDAs at Site 12. The Navy developed site-specific exposure parameters to develop site-specific action levels for soil (Tetra Tech 2002b). The Site 12 specific action levels are summarized in the following table.

| COC | Action Level (mg/kg) | Basis | Health Endpoint |
|------------------------|----------------------|----------------------------------|--|
| Lead | 400 | EPA Region 9 Residential PRG | Blood-lead level less than 10 µg/dL at the 95 th percentile. |
| PAHs (BAP equivalents) | 0.62 | Site specific | Corresponds to a cancer risk of 4.2×10^{-6} The hazard quotient is less than 0.1 |
| PCBs | 1.0 | ARAR (40 CFR 761.61(a)(4)(i)(A)) | Corresponds to a cancer risk of 1.9×10^{-6} The hazard quotient is 0.5 |

Notes:

| | | | |
|-------|--|-------|--------------------------------------|
| µg/dL | Microgram per deciliter | EPA | U.S. Environmental Protection Agency |
| ARAR | Applicable or relevant and appropriate requirement | mg/kg | Milligram per kilogram |
| BAP | Benzo(a)pyrene | PAH | Polycyclic aromatic hydrocarbons |
| CFR | Code of Federal Regulations | PCB | Polychlorinated biphenyl |
| COC | Chemical of concern | PRG | Preliminary remediation goal |

2.8.2 Soil Action Levels for Dioxins

Based on findings from previous studies conducted by the EPA on ambient dioxin levels in soil, an ambient level for dioxin TEQ was proposed by the Navy (Navy 2004), and the DTSC concurred with the recommendation (DTSC 2004b).

| COC | Action level | Basis |
|--------|--------------|---|
| Dioxin | 12 ng/kg | EPA estimated mean value of soil dioxin in urban areas, anthropogenic sources of dioxin, location of NAVSTA TI, established cleanup level by DTSC for a dioxin site in the San Francisco area |

Notes: Dioxin action level is the TEQ concentration.

| | | | |
|--------|--|-------|-----------------------|
| COC | Chemical of concern | ng/kg | Nanogram per kilogram |
| DTSC | Department of Toxic Substances Control | TEQ | Toxicity Equivalent |
| EPA | U.S. Environmental Protection Agency | TI | Treasure Island |
| NAVSTA | Naval Station | | |

2.8.3 Methane-Impacted Areas

Methane-impacted areas would be addressed using the requirement set out in Cal. Code Regs., Title 27 requirements which state:

“The concentration of methane gas migrating from the landfill must not exceed 5 percent by volume in air at the facility property boundary or an alternative boundary approved in accordance with § 20921.”

| COC | Action level | Basis |
|---------|---------------------|---|
| Methane | 5% by volume in air | Title 27, <i>California Code of Regulations</i> , Section 20921 |

Notes:

COC Chemical of concern

2.8.4 Risk Screening Evaluation

The Navy conducted a screening level risk evaluation to assess the health effects associated with exposure to contaminated soil at the four SWDAs. The evaluation considered the heterogeneous distribution of soils contaminated with solid waste and COPC.

The initial screening level risk evaluation compared contaminant soil concentrations associated with individual sampling locations to the soil action levels. The following chemicals were identified as COCs on the basis of this screening:

- Lead. Concentrations of lead in surface soil exceeded the action level of 400 mg/kg in the Site 12 SWDAs. The RI reports ([PRC 1997](#); [Tetra Tech 1999a](#)), indicate that concentrations of lead in soil exceeded the action level within and near the SWDAs at Site 12. In addition, several rounds of additional soil investigations have been conducted at Site 12; the results of these investigations also indicate that elevated concentrations of lead are present in the SWDAs.
- Dioxins, PAHs and PCBs. A review of the analytical data (see [Section 2.7](#)) indicates that dioxins, PAHs and PCBs are present in the SWDAs in surface soils at concentrations above the action levels.
- Methane. A review of the analytical data (see [Section 2.7](#)) indicates that methane is present underground in one of the SWDAs at concentrations above allowable limits.

2.8.5 Evaluation of the Protectiveness of a Soil Cover or Hard Physical Barrier

The Navy conducted a qualitative risk evaluation to assess the protectiveness of removing the top 4 feet of soil in the common areas and backyards within the SWDAs and backfilling with 4 feet of clean soil or the placement of a hard physical barrier at the ground surface. The qualitative risk evaluation is described in the following sections.

2.8.5.1 Potential Receptors

Potential receptors at the Site 12 SWDAs were identified as residents (adults and children) in occupied housing units, future residents (adults and children), recreational users of the common areas, landscape workers, and workers installing or servicing underground utilities. Residents might be exposed to the contaminated soil or encounter physical hazards from solid waste in the backyards of the housing units or in common areas covered by grass and landscaping. Utility workers might encounter contaminated soil or solid waste while installing or servicing underground utilities.

2.8.5.2 Exposure Pathways

Exposure pathways describe the mechanisms by which exposure to chemicals can occur. According to EPA (1989a), an exposure pathway is complete if there is (1) a source and mechanism of release (such as hazardous materials being disposed of on the ground), (2) a retention or transport medium (such as soil), (3) a point of human contact with the contaminated medium (such as contaminated soil in the backyards or common areas), and (4) an exposure route (such as ingestion) by which contact can occur. All four of these components must be present for an exposure pathway to be considered complete and for exposure to COCs to occur. If any component is missing, the pathway is considered to be incomplete and exposure to COCs does not occur. Each of these components is addressed below for the resident and utility worker receptor.

Residents

The expected uses of backyards and common areas include light recreational activities (as described below) by residents and visitors and as walking paths between apartment units. Light recreational activities for children include unstructured play and informal games such as catch, and soccer. Expected activities of adults include participating in children's games, jogging, and supervising young children. The child and adult residents participating in these activities might be exposed to soil through the following pathways:

- Incidental ingestion of soil
- Dermal contact with soil
- Inhalation of particulates released from soil to ambient air
- Inhalation of vapor

Two potential exposure pathways that are sometimes associated with residential exposure to soils are ingestion of homegrown produce and inhalation of VOCs released from soils to ambient air. Each of these pathways is discussed in the following text.

Ingestion of homegrown produce by residents at Site 12 is considered a potentially complete exposure pathway. However, Site 12 is currently populated with multiple, high-density housing units and it is anticipated that high-density residential use will continue at the site, given the redevelopment plans for Site 12 proposed in the Draft NAVSTA TI Reuse Plan

(CCSF 1996). Under current use and current site conditions, exposure to soil in the backyard areas is restricted, given the various temporary remedies in place (home gardening restrictions, pavement and vegetative covers). For residential use under altered site conditions (in the event the site is redeveloped), the growing of produce in meaningful amounts is considered unlikely (DTSC 1992). Also within the SWDAs, the surface would either be capped or excavated rendering the homegrown produce pathway incomplete. For these reasons, the ingestion of homegrown produce will not be quantified for the SWDAs at Site 12.

Inhalation of VOCs released from soil was considered to be incomplete because of the low volatility of PAHs and PCBs (inorganic lead is not volatile) and the rapid dilution and dispersion of any chemicals released to outdoor air. A complete evaluation of potential exposure to soil vapor will be conducted in the upcoming site-wide Site 12 RI report.

Utility Workers

In addition to the three exposure pathways identified for the residents, potential exposure pathways for the utility worker also include the following:

- Dermal contact with shallow groundwater
- Inhalation of volatile chemicals in outdoor air from soil and/or groundwater in the vapor phase.

Construction workers described in the Site 12 RI Work Plan (SulTech 2006a), and utility workers discussed herein, may both come into dermal contact with groundwater during excavation activities that intercept the shallow water table (located at about 4 feet bgs across the site). Although utility worker-related activities in saturated trench conditions are generally avoided and dewatering is commonly implemented for effective construction or repair activities, the potential exists for workers to enter a trench that contains standing groundwater in the absence of dewatering or personal protective equipment. Dermal contact with groundwater will be evaluated for the utility worker receptor to account for these exposure scenarios, as part of the RI currently being developed for Site 12. The RI report will also evaluate potential inhalation exposures to vapors volatilizing from combined surface and subsurface soil and groundwater for the construction and/or utility worker assuming exposure occurs within a construction or utility trench. This may be a significant pathway for this receptor because of reduced air mixing and dispersion of contaminants within a semi-confined trench.

The physical-chemical properties of the COCs are discussed in the following section.

2.8.6 Fate and Transport Properties of the Chemicals of Concern

Information on the physical and chemical properties that affect the mobility of Site 12 COCs is summarized below. Only information that generally pertains to the proposed remedies is discussed.

- Lead. Lead in soil is generally insoluble, except under acidic conditions. Groundwater conditions at Site 12 are not acidic, and lead has not been detected in groundwater during groundwater monitoring events at Site 12 ([Tetra Tech 2002a](#)). In addition to having low solubility, lead binds electrostatically to soil and is strongly sorbed to organic matter in soil, limiting its transport in soil ([Fetter 1993](#)). Based on this information, lead at Site 12 is expected to be immobile in undisturbed soils. Lead could be mobilized through wind erosion or surface water transport of affected soil.
- PAHs. PAHs as a group generally have low water solubility and sorb strongly to organic carbon in soil and sediment. PAHs are classified as immobile compounds ([Fetter 1988](#)). PAHs have not been detected in groundwater during groundwater monitoring events at Site 12 ([Tetra Tech 2002a](#)). Although PAHs generally occur as a complex mixture of compounds, the properties that control their fate and transport are generally related to their molecular weights. Although PAHs with the highest molecular weights are the most toxic of the group, they are also the least soluble and have the highest soil sorption coefficients. Because PAHs are strongly sorbed to soil and are essentially insoluble in water, they are mobilized only through wind erosion or surface water transport of the affected soil. As a class, PAHs have low vapor pressures, with volatility tending to increase with decreasing molecular weight. Sorption is the primary process governing the fate of PAHs released to soil, so that only very low levels of PAHs are released through volatilization from soils to ambient (outdoor) air (Agency for Toxic Substances and Disease Registry [[ATSDR](#)] 1995).
- PCBs and Dioxins. PCBs and dioxins are stable compounds that have high thermal stability and resist degradation in both acidic and alkaline environments. Like PAHs, PCBs and dioxins sorb strongly to organic carbon in soil and sediment and have very low solubility in water. PCBs and dioxins also are classified as immobile compounds ([Fetter 1988](#), [ASTDR 1998](#)). PCBs and dioxins have not been detected in groundwater during historic and recent groundwater monitoring events in Site 12 ([Tetra Tech 2002a](#)). PCBs and dioxins are strongly sorbed to soil and are essentially insoluble in water. These characteristics result in a possibility that PCBs and dioxins could be mobilized through wind erosion or surface water transport of the affected soil. As a class, PCBs have low vapor pressures, with volatility tending to increase with decreasing levels of chlorination. Sorption is the primary process governing the fate of PCB and dioxin congeners released to soil, so that only very low levels of PCBs are released through volatilization from soils to ambient (outdoor) air ([ATSDR 2000](#)).
- Methane. Methane is a colorless, odorless, tasteless gas that is flammable and has a lower explosive limit of 5 percent methane/v in air. Methane-rich environments can result in asphyxiation and heightened explosive related risks. Methane can result from decomposing waste materials. If present beneath an existing soil surface, methane can migrate vertically upwards if the permeability of the overlying soil allows or if the presence of preferential pathways (such as utility conduits) exists. Methane can also accumulate below an impermeable layer such as hardscape. Recent soil gas investigations at Site 12 ([Tetra Tech 2003](#)) indicate that except for two locations near Buildings 1319 and 1321, methane has not been detected at levels exceeding the screening criterion.

2.8.7 Ecological Risk Evaluation

Family housing units and pavement cover about 60 percent of Site 12. Landscaped lawns cover the remaining 40 percent of the site. Lawns, in general, provide poor habitat, and landscaped areas are planted with largely non-native species, to which few animals have adapted. Disturbance from vehicular traffic and general human presence also reduces the quality of the habitat to wildlife species at this site.

Because of the low-quality habitat of the site, few, if any, receptors of concern use the area. Receptors using this area, such as pigeons, European starlings, house sparrows, and house mice, are not native to the United States and are not receptors of concern. Avian receptors native to California potentially using Site 12 are mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), northern mockingbird (*Mimus polyglottos*), and Stellar's jay (*Cyanocitta stelleri*) (PRC 1992). Small mammals native to California that may occur are the ground squirrel (*Spermophilus beecheyi*), deer mouse (*Peromyscus maniculatus*), and bats (Order Chiroptera).

Potential terrestrial exposure pathways include dermal contact with, and indirect ingestion of, contaminated soil. Receptors of concern that have been identified at other portions of NAVSTA TI, the deer mouse (*Peromyscus maniculatus*), American kestrel (*Falco sparverius*), and peregrine falcon (*Falco peregrinus anatum*), have not been observed to spend time at Site 12 and are not likely to use the poor habitat offered by the site. Although the pathways are expected to be complete in landscaped areas, receptors of concern have not been observed to frequent the area. Adequate habitat is available for receptors of concern within the larger and higher-quality habitat in the undeveloped areas of YBI.

Dioxins, lead, PCBs, and PAHs may enter the food chain through direct contact and ingestion of terrestrial fauna by foraging animals or plant uptake and subsequent ingestion by wildlife. Although lead is toxic by ingestion and accumulates within animal tissues, the low quality of wildlife habitat at Site 12 makes it unlikely that any terrestrial receptors would be threatened by contamination. Although it is unlikely that dioxins, lead, PCBs, and PAHs would have a negative ecological impact at the site, a screen for potential adverse effects of soil contaminants on the soil invertebrate community, terrestrial plants, and relatively non-mobile bird and mammal receptors was recently conducted as part of the Screening-Level Ecological Risk Assessment (SLERA) for NAVSTA TI. A site visit conducted in March 2006 as part of the SLERA for IR Sites 6, 12, 21, 24, 30, 31, 32, and 33 confirmed that habitat at IR Site 12 consists of residential areas with multi-family houses, landscaped lawns, and landscaped vegetation. The ecological checklists completed during the site visit were provided in Appendix A of the SLERA (SulTech 2006b). The results of this evaluation will be incorporated into the 2006 RI report currently being developed for the whole of Site 12. This revised EE/CA focuses on addressing potential human health risks within the SWDAs of Site 12.

3.0 IDENTIFICATION OF REMOVAL ACTION OBJECTIVES

This section discusses the following aspects of the planned removal action within the SWDAs at Site 12: (1) the statutory framework; (2) determination of scope; (3) determination of schedule; (4) applicable or relevant and appropriate requirements (ARARs); and (5) the remedial action objectives (RAO).

3.1 STATUTORY FRAMEWORK

This removal action is being taken pursuant to CERCLA and the NCP, under the delegated authority of the Office of the President of the United States, by Executive Order (EO) 12580. EO 12580 provides the Navy with authorization to conduct removal actions. The removal action is a NTCRA, because no immediate risk exists to human health. The public comment period for this EE/CA will provide the opportunity for public, regulatory, and all other interested parties input to the cleanup process.

The Navy is the lead federal agency for the removal action. As the lead federal agency, the Navy has the authority to select the removal action methodology, while considering public and regulatory agency input. The Base Realignment and Closure, Program Management Office West, is the regional manager of the Navy's CERCLA program.

This revised EE/CA complies with the requirements of CERCLA and the Superfund Amendment and Reauthorization Act of 1986; the NCP at 40 CFR Part 300; Defense Environmental Restoration Program at Title 10 of U.S. Code Section 2701, and subsequent sections; and EO 12580. This EE/CA is being prepared under 40 CFR Part 300.415(b)(2). In addition, the Navy will conduct the removal action in compliance with CERCLA.

Chemical- and solid waste-contaminated soil at Site 12 potentially contains dioxins, lead, PCBs, PAHs, and debris (solid waste). Subsurface methane gas has also been detected. Within the SWDAs at Site 12, dioxins, lead, PCBs and PAHs were detected at levels exceeding site-specific cleanup criteria. The debris found in the various test pits throughout Site 12 consisted of ceramics, glass, metal, and wood.

Residential exposure to chemical-containing soils exposed by erosion, excavation, and other activities by residents in common areas and backyards could create a potential hazard. The proposed removal action is intended to reduce the threat of human exposure to chemical- and solid waste-contaminated soil at Site 12.

The proposed removal action will address the threats posed by the following conditions at Site 12, pursuant to the NCP:

Actual or potential exposure of nearby human populations to hazardous substances, pollutants, or contaminants (40 CFR Part 300.415(b)(2)(i)). People residing or working at the site may be exposed through excavation, erosion, or other intrusive activities, to soil contaminated with dioxins, lead, PCBs, and PAHs through direct contact or incidental ingestion. Lead, PCBs, PAHs, and dioxins are hazardous substances known to pose a threat to human health. Methane poses an explosion hazard at the site.

High levels of hazardous substances, pollutants, or contaminants in soil largely at or near the surface that may migrate (40 CFR Part 300.415(b)(2)(iv)). Dioxin, lead, PCB, and PAH concentrations exceeding residential PRGs and site-specific action levels (EPA 1999) are present in soil at and near the surface of the site. The presence of the methane above allowable concentrations presents an explosion hazard at the site. This dioxin, lead, PCB, PAH, and methane contamination may adversely affect public health and welfare if it is not removed or isolated.

3.2 DETERMINATION OF REMOVAL SCOPE

The removal action is intended to restrict the pathway and reduce potential risk for residential human and utility worker exposure to hazardous substances in soil within Site 12 SWDAs under the current land and utility configuration. The proposed removal action is intended to be consistent with the final remedy for Site 12. All areas outside of the SWDAs are excluded from this EE/CA and are currently being evaluated in the RI report. The Draft RI report is scheduled to be completed in April 2007.

3.3 DETERMINATION OF REMOVAL SCHEDULE

This revised EE/CA identifies and evaluates removal action alternatives for the four SWDAs within Site 12. This EE/CA will be available for public review and comment for 30 days. The Navy will review the comments and, where appropriate, incorporate responses to public and regulatory agency comments into the Action Memorandum and provide responses to all comments in a Responsiveness Summary in an appendix.

It is anticipated that the work plan, removal action, site restoration activities, and final completion report will be completed within 18 months after award of the removal contract.

3.4 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The NCP states, "Removal actions . . . shall to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under Federal environmental or state environmental or facility citing laws" (40 CFR Part 300.415[i]).

An evaluation of ARARs for this revised EE/CA can be found in [Appendix E](#). The following sections provide an overview of the ARARs process and a summary of those ARARs that potentially affect RAOs and alternatives.

3.4.1 Applicable or Relevant and Appropriate Requirements Overview

The identification of ARARs is a site-specific determination and involves a two-part analysis. First, a determination is made about whether a given requirement is applicable. Second, if it is not applicable, a determination is made about whether it is relevant and appropriate. A requirement is deemed applicable if the specific terms of the law or regulation directly address the COC, remedial action, or location involved at the site. If the jurisdictional prerequisites of the law or regulation are not met, a legal requirement may nonetheless be relevant and appropriate if the site's circumstances are sufficiently similar to circumstances in which the law otherwise applies and it is well suited to site conditions.

A requirement must be substantive to constitute an ARAR for activities conducted on site. Procedural or administrative requirements, such as permits and reporting requirements, are not ARARs.

As the lead federal agency, the Navy has the primary responsibility for identification of federal ARARs for IR sites at NAVSTA TI. As the lead state agency, DTSC has the responsibility for identifying state ARARs. For a state requirement to qualify as an ARAR, the requirement must be (1) a state law, (2) promulgated, (3) a substantive requirement, (4) from an environmental or facility siting law, (5) more stringent than the federal requirement, (6) identified in a timely manner, and (7) consistently applied. ARARs and to be considered (TBC) criteria are generally divided into three categories: chemical, location, and action specific. TBC means that an environmental standard, requirement, criteria, or limitation is not legally applicable or relevant and appropriate, but is nevertheless useful information "TBC" in developing remedial alternatives. ARARs and TBCs affecting RAOs and alternatives are discussed in the following section.

3.4.2 Applicable or Relevant and Appropriate Requirements and To Be Considered Criteria Affecting Removal Action Objectives and Alternatives

3.4.2.1 Chemical-Specific ARARs

Chemical-specific ARARs are health- or risk-based numerical values or methodologies that, when applied to site-specific conditions, result in establishment of numerical cleanup values. These values establish the acceptable amount or concentration of a chemical found in, or discharged to, the ambient environment that is protective of human health or ecological receptors. The only potential chemical-specific ARARs are those requirements applicable to identification and land disposal of hazardous waste, and the California requirement addressing methane levels.

If the removal action generates contaminated media that meets the definition of a Resource Conservation and Recovery Act (RCRA) hazardous waste, then RCRA waste management requirements may be applicable. The RCRA requirements at 22 Cal. Code Regs. §§ 66261.21,

66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potential ARARs, because they define RCRA hazardous waste.

In addition, the substantive provisions of 40 CFR § 761.61(a)(4), (b), and (c) are potential ARARs for PCBs remediation waste. This regulation, promulgated under the Toxics Substances Control Act, regulates the storage and disposal of PCB remediation waste. There are three options: (1) self-implementing on-site cleanup and disposal; (2) performance-based disposal using existing approved disposal technologies; and (3) risk-based disposal. Under the self-implementing option, the bulk PCB remediation waste cleanup level for high-occupancy areas is less than or equal to 1 part per million. The Navy has identified the substantive provisions of the following state requirements as potential ARARs:

- Cal. Code Regs., tit. 22, §§ 66261.22(a)(3) and (4), § 66261.24(a)(2)–(a)(8), § 66261.101, § 66261.3(a)(2)(C) or § 66261.3(a)(2)(F) (definition of non-RCRA waste)
- Cal. Code Regs., tit 27, §§ 20210, 20220 and 20230 (definition of designated waste, nonhazardous waste, and inert waste)
- Cal. Code Regs., tit. 27, § 20921 (concentrations of methane migrating must not exceed 5 percent by volume in air at the property boundary.)

The Navy identified potential chemical-specific TBCs for lead for human receptors. The EPA Region 9 risk-based PRG for lead in residential soil, 400 mg/kg ([EPA 1999](#)), has been applied by the Navy and DTSC as the cleanup goal for lead concentrations for prior Site 12 removal actions and will be used in this removal action.

3.4.2.2 Location-Specific ARARs

Location-specific ARARs are restrictions placed on concentrations of hazardous substances or the conduct of activities as a result of the characteristics of the site or its immediate environment. The McAteer-Petris Act and San Francisco Bay Plan, California's approved coastal management program, includes the San Francisco Bay Plan (Bay Plan) developed by the San Francisco Bay Conservation and Development Commission (BCDC). The BCDC was formed under the authority of the McAteer-Petris Act, California Government Code § 66600 et seq., which authorizes the BCDC to regulate activities within San Francisco Bay and its shoreline (including 100 feet landward from the shoreline) in conformity with the policies of the Bay Plan ([BCDC 1968](#)). The McAteer-Petris Act and the Bay Plan were developed primarily to halt uncontrolled development and filling of the San Francisco Bay. Their broad goals include reducing San Francisco Bay fill and disposal of dredged material in the San Francisco Bay, maintaining marshes and mudflats to the fullest extent possible to conserve wildlife and abate pollution, and protecting the beneficial uses of the San Francisco Bay. Because the federal Coastal Zone Management Act of 1972, which requires compliance with approved state coastal zone management program, is a potential ARAR, the McAteer-Petris Act and the Bay Plan are potential ARARs.

3.4.2.3 Action-Specific ARARs

Action-specific ARARs are technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes. These requirements are triggered by the particular remedial activities selected and suggest how a selected removal alternative should be achieved. These action-specific requirements do not, in themselves, determine the removal alternative; rather, they indicate how a selected alternative must be conducted. Therefore, because action-specific ARARs depend on the action selected, they are identified after an alternative has been selected.

3.4.2.4 Excavation

For excavation, the following requirements may be action-specific ARARs. As introduced under [Section 3.4.2.1](#), Chemical-Specific ARARs, RCRA is a potential ARAR for excavation and off-site disposal of soil. Any excavated waste will be characterized to determine whether it is a hazardous waste (Cal. Code Regs. tit. 22, §§ 66262.10(a) and 66262.11). Any hazardous waste accumulated on-site, including waste contained in soil, must comply with the RCRA requirements set forth in 40 CFR § 264.554(d)(1)(i-ii) and (d)(2), (e),(f),(h),(i),(j), and (k). This section provides that a generator may accumulate solid remediation waste in a staging pile for storage only up to 2 years, during remedial actions without triggering land disposal restrictions.

The substantive provisions of Bay Area Air Quality Management District (BAAQMD) Regulation 6-302 that specify standards for visible emissions for excavations, are potential ARARs for excavation activities.

The Federal Hazardous Materials Transportation Law (49 *United States Code* § 5101-5127), implemented at 49 CFR §§ 171.2(f), 171.2(g), 172.300, 172.301, 172.302, 172.303, 172.304, 172.312, 172.400, and 172.504, are potential relevant and appropriate requirements for transporting hazardous waste. These sections consist of requirements for transporting hazardous wastes, including representations that containers are safe, prohibitions on altering labels, marking requirements, labeling requirements, and placarding requirements.

In addition, the Navy has identified the following potential federal action-specific ARAR under the Clean Water Act:

- Storm water discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4)

This regulation requires the use of best management practices to control or abate the discharge of pollutants when authorized under Clean Water Act § 402(p) to control storm water discharges. Under the Clean Water Act and its implementing regulations, individual National Pollutant Discharge Elimination System permits, or coverage under promulgated storm water general permits, are required for construction that disturbs at least 1 acre. The State of California has promulgated a storm water general permit as Order Number 99-08-DWQ (Division of Water Quality). Under CERCLA § 121(e)(1), no federal, state, or local permit is required for any

remedial action conducted entirely on site, where it is selected and carried out in compliance with CERCLA § 121. The Navy is therefore not required to obtain an individual storm water permit or submit a notice of intent to discharge under the state's general permit. The Navy will, however, use the substantive requirements of the state's general permit for storm water discharges as TBCs for complying with the requirement to apply best management practices for storm water discharges promulgated at 40 CFR § 122.44(k)(2) and (4). Order Number 99-08-DWQ has been identified as a state TBC.

3.4.2.5 Capping

Action-specific ARARs for capping of soil within the SWDAs include portions of Cal. Code Regs., tit. 27 that relate to an engineered alternative cover of SWDAs (Cal. Code Regs., tit. 27, §§ 20080(b) and (c) and 21090); dust control (Cal. Code Regs., tit. 27, § 20800); drainage (Cal. Code Regs., tit. 27, § 20820(a)(1)-(3)); litter (Cal. Code Regs., tit. 27, § 20830); gas (Cal. Code Regs., tit. 27, § 20919); final cover (Cal. Code Regs., tit. 27, § 21140(a)-(c)(1)-(3)); final grading (Cal. Code Regs., tit. 27, § 21142(a)-(b)(1)-(2)); slope stability (Cal. Code Regs., tit. 27, § 21145(a)-(b)); and the substantive provisions of post-closure land use (Cal. Code Regs., tit. 27, § 21190(a)).

3.5 REMOVAL ACTION OBJECTIVE

RAOs are site-specific qualitative or quantitative goals that define the extent of cleanup required for a removal action. This planned removal action is meant to address potential risk from direct contact with soil to a resident or utility worker under the current land use and utility configuration. Based on CERCLA and the NCP, the RAO is as follows:

- Reduce the potential for human contact with chemical- contaminated soil near the ground surface within the four SWDAs at Site 12 under the current land and utility configuration.

For this Site 12 EE/CA, the following criteria are considered to be action levels for excavation of common areas within the SWDAs:

- Lead – the EPA Region 9 residential risk-based PRG for lead in soil (400 mg/kg maximum) will be used as the action level. The EPA Region 9 risk-based PRG for lead in residential soil (400 mg/kg) has been accepted by the Navy and DTSC as the preliminary cleanup goal for lead concentration for previous Site 12 removal actions.
- PCBs – the concentration in soil of 1 mg/kg is the site-specific criterion. This action level has been accepted by the Navy and DTSC as the preliminary cleanup goal for PCB concentration for previous Site 12 removal actions.
- PAHs – the concentration in soil at the BAP equivalent concentration of 0.62 mg/kg is the site-specific criterion. This action level has been accepted by the Navy and DTSC as the preliminary cleanup goal for PAH concentration for previous Site 12 removal actions.

- Dioxin – the NAVSTA TI ambient dioxin TEQ concentration in soil of 12 ng/kg will be used as the action level. DTSC has concurred with this concentration as an ambient level.
- Solid waste-contaminated soil – visual observations will be used to verify that solid waste is removed laterally.

4.0 IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

Based on the RAO presented in [Section 3.5](#), and the reasonably foreseeable future use of the SWDAs according to the Draft NAVSTA TI Reuse Plan (City and County of San Francisco [\[CCSF\] 1996](#)), five alternatives have been developed to implement the removal action within the four SWDAs at Site 12. The alternatives generally fall into two categories; capping and soil excavation (including or excluding the hardscape). The roadways are considered to be an effective interim barrier to prevent direct contact to soil, but due to the deteriorated and poor condition of the roadways within the SWDAs, they would not provide a long-term protective barrier. Other forms of hardscape (i.e., concrete driveways and sidewalks) would provide a protective long-term barrier.

The five alternatives are described in the following sections and per CERCLA and the NCP are initially evaluated based on their effectiveness, implementability, and cost. Each alternative is further evaluated against the five criteria to evaluate effectiveness (40 CFR Part 300.430): (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume through treatment; and (5) short-term effectiveness.

Evaluation of the implementability for each alternative considers: (1) technical feasibility, (2) administrative feasibility, and (3) commercial availability of the remedy. Public and regulatory agency acceptance will be evaluated in an Action Memorandum after the public comment period for the EE/CA.

Costs for each removal action, including direct and indirect costs, were estimated using the R.S. Means Environmental Remediation Cost Data 2005, vendor quotes and professional judgment ([R.S. Means Company, Inc. 2005a, 2005b](#)). Annual operations and maintenance (O&M) costs for a 30-year period were included for each of the alternatives. Direct capital costs include labor, equipment, material, and waste disposal. Indirect costs include construction management staff, office overhead, general and administration, home office expenses, design, insurance, contingency allowances, and profit. The accuracy goal of the cost opinion is plus 50 to minus 30 percent.

A present worth value has been calculated for each alternative. The present worth calculation normalizes alternatives where operating durations differ to facilitate comparisons. All “total project durations” start at the time capital equipment is delivered to the site. It is assumed that procurement and design for all alternatives will be similar, so the base year for present-worth analysis begins at the completion of construction.

Five alternatives are presented in this section:

- Alternative 1: Soil excavation to 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility to a maximum depth of 4 feet bgs. Soils below hardscape such as, sidewalks and driveways will not be excavated. Soils beneath roadways will be excavated.

- Alternative 2: Soil excavation to 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility to a maximum of 4 feet bgs. Soils below hardscape and unpaved areas including roadways will be excavated.
- Alternative 3: Soil excavation to 4 feet bgs. Soils below hardscape such as sidewalks and driveways will not be excavated. Soils beneath roadways will be excavated
- Alternative 4: Soil excavation to 4 feet bgs. Soils below hardscape and unpaved areas including roadways will be excavated.
- Alternative 5: Capping

Excavation of 6 inches of soil beneath utilities for the first two alternatives is intended to provide protection from direct contact to a utility worker.

Potential risks associated with common areas outside of the SWDAs are not addressed in this revised EE/CA and will be evaluated as part of the RI Program for Site 12. The RI report will provide the basis for estimating potential human health risks and developing any necessary remedial actions for these areas.

Because many of the alternatives include common components (radiological screening, excavation, off-site disposal, restoration, and post-closure monitoring, ICs), the common components are discussed (once) before the discussion of specific alternatives.

4.1 RADIOLOGICAL SCREENING

A Historical Radiological Assessment (HRA) was conducted at NAVSTA TI in 2006 (Weston Solutions 2006). The HRA presents a comprehensive history of radiological operations using radioactive material at NAVSTA TI. The HRA did not identify any known uses of radioactive material in Site 12 and summarized results of radiological screening of over 580 test trenches throughout Site 12 outside of the known SWDAs. The results indicate that radiological contamination is not present at Site 12. The HRA report recommends radiological screening during soil excavation of three Site 12 SWDAs (A&B, 1207/1209, and 1231/1233). Although it is highly unlikely that any radiological material would be found during soil excavation of the three SWDAs recommended for screening, excavated soils will be characterized for radiation by performing both surface and subsurface radiological screening of the SWDA excavated material.

Before excavation begins, a comprehensive radiological screening plan will be developed that will include a sampling and analysis plan and a worker health and safety plan. The Navy Radiological Activity Support Office will review and approve the radiological screening plan.

Although, the actual equipment, procedures, and methods for performing the radiological soil screening will be presented in the radiological screening plan, the general procedure will involve radiological scanning, removing any areas with high readings, and removing a lift of soil to some depth followed by more radiological scanning.

4.2 EXCAVATION

Initially, nearby residents would be notified of the planned excavation and the site would be secured with temporary fencing. Pre-excavation grades and conditions would be documented, and underground utility clearance surveying would be conducted. In addition, the contractor would set up an exclusion zone, decontamination area, and general work areas for the excavation, hauling, loading, and weighing of the soil and solid waste.

The Navy is proposing to remove either the top 2 feet of soil (for Alternatives 1 and 2) or excavating to 4 feet bgs (Alternatives 3 and 4) and backfill excavated areas with clean soil. In order to avoid excavating below the groundwater table, the Navy is proposing to excavate to a maximum depth of 4 feet bgs. The actual depth of excavation may be less than 2 or 4 feet bgs where cleanup goals are achieved at shallower depths. Areas within the SWDAs that are impacted by methane will also be excavated and any natural gas lines passing through the area will be capped or removed. As part of this alternative, interim restrictions would be implemented to address any remaining soils to prohibit soil-intrusive activities such as digging or gardening below depths of 2 feet bgs (if Alternative 1 or 2 is selected) or 4 feet bgs (if Alternative 3 or 4 is selected). Interim restrictions would include house rules and a dig permit program to prohibit or manage soil-intrusive activities into contaminated soil that remains after the removal action.

Ultimately, ICs would be necessary to prevent long-term exposure to underlying soil in excavated areas. A 2-foot or 4-foot cover for backyards and common areas (combined with ICs) was identified as being protective of human health on the basis of a qualitative risk evaluation (see [Section 2.4](#)) that considered the potential exposure pathways identified for child and adult residential receptors exposed to soils, and the fate and transport properties of the COCs. Placement of 2 feet or 4 feet of clean soil cover over contaminated soils is protective of human health, as long as the following two conditions are met: (1) the soil cover remains uncontaminated and intact and (2) remaining contaminated subsurface soils (at depths greater than 2 or 4 feet bgs) are not brought to the surface. These conditions can be maintained by ensuring that residents are prohibited from engaging in any type of activity that would involve disturbance of more than the first few inches of soil. Also, a visible, geotextile marker would be placed at a depth of 2 feet bgs (if Alternative 1 or 2 is selected) or 4 feet bgs (if Alternative 3 or 4 is selected). For the purpose of evaluating the costs for each alternative developed, it is assumed that interim restrictions, followed by ICs, would be put in place to address remaining or excavated soils removed during necessary maintenance activities associated with landscaping or maintenance of the areas (for example, utility maintenance).

The thickness of the protective layer also depends on the applicable purposes of the protective layer. For Site 12, the reasonable thickness is 2 feet, based on the following purposes of the protective layer as identified in federal (40 CFR Part 258) and state requirements (Cal. Code Regs., tit. 27, § 21140):

1. Prevent Erosion. A minimum of 6 inches of topsoil is needed to maintain plant growth and impede water and wind erosion.

2. Consider the Unique Characteristics of Small Communities. At TI, it is assumed that residents will use the proposed excavated areas for recreational purposes. A 6-inch layer of topsoil is sufficient for many of the normal gardening and maintenance activities associated with plant growth in common areas. Excavations beyond 6 inches, to a depth of 2 feet bgs, are possible for planting shrubs and other plants. Excavations beyond 2 feet bgs are possible for larger trees or other intrusive activities such as laying pipes and other utilities underground. Excavations beyond 4 feet bgs in depth and corresponding risk scenarios will be evaluated as part of the site assessment in the RI/FS phase for Site 12.
3. Be Protective of Human Health and the Environment. The minimum vegetative soil/top layer recommended by EPA is 2 feet for landfills and surface impoundments (1989b).

Based on the above considerations, a 2-foot-thick soil cover (Alternative 1 or 2) would provide adequate long-term protection for a resident or other recreational user.

The concrete hardscape and building foundations are considered effective exposure prevention barriers. The SWDA roadways are in poor condition and would not provide an effective exposure prevention barrier. Alternatives 1 and 3 would include excavation beneath the roadways in SWDAs A&B and 1207/1209.

The estimated lateral extent of the excavation for each SWDA is shown on [Figures 1-2 through 1-4](#). The actual lateral extent of the common area SWDA excavation would be set by the presence of chemical and physical hazards in the sidewalls, as determined by confirmation sampling. The actual vertical extent would be determined by confirmation sampling at the base of the excavation and comparing the results to the cleanup criteria. In no case would the excavation extend deeper than the prescribed depth for the respective alternative, either 2 or 4 feet bgs.

The first 6 inches of soil will be excavated below underground utilities present within the SWDAs. Each excavation alternative would address all utilities located below the ground surface down to 4 feet bgs. Alternatives 1 and 3 will only address utilities located within unpaved areas, with Alternative 3 including excavation beneath roadways as they are considered less protective than the other forms of hardscape at the site such as concrete driveways. Alternatives 2 and 4 will address utilities located within unpaved and hardscape areas. If excavation is to 4 feet bgs, utilities encountered may either be temporarily rerouted to allow excavation to continue or temporarily supported during excavation activities. Measures would be implemented to ensure that utilities are protected.

Excavated material would consist of solid waste, chemically contaminated soil, and incidentally removed clean soil. Removal areas would be excavated mechanically using standard construction equipment (such as excavators). In areas where utilities are located or in close proximity to the excavation area, digging with shovels (or other appropriate hand tools) would be employed to avoid impacting the utilities, in these areas the use of mechanical excavation equipment would be kept to a minimum. After excavations are complete, final confirmation

sidewall samples would be collected and analyzed to verify the lateral extent of the excavation. Confirmation sampling and inspection would be conducted in accordance with the construction oversight work plan.

4.3 ENGINEERING CONTROLS AND INSTITUTIONAL CONTROLS

Because for each alternative contaminated soil would be left in-place either at depth or beneath hardscape, the final remedy for Site 12 will include engineering controls and ICs to prevent future exposure. Engineering controls and ICs will be addressed in detail in remedial documents to be developed for the entire site after the remedial investigation of the entire site is complete.

4.3.1 Engineering Controls

Engineering controls would include hard physical barriers to prevent direct contact with the contaminated soil. The barriers would include concrete driveways, building foundations, and other structures. The necessary engineering controls would have to be maintained for as long as residents occupy the area.

4.3.2 Institutional Controls

ICs are legal and administrative mechanisms used to implement land use and access restrictions, which are used to limit the exposure of future landowner(s) and/or user(s) of the property to hazardous substances and to maintain the integrity of the remedial or removal action until remediation is complete and remediation goals have been achieved. Monitoring and inspections as part of annual reporting and 5-year reviews are conducted to assure that the selected remedy is effective and will also verify that the land use restrictions are being followed. The management of ICs will be the responsibility of the property owner, currently the Navy. The management of ICs will transfer with the property and become the transferees' responsibility. The Navy has a Memorandum of Agreement with DTSC for enforcement.

Often ICs are more effective if they are layered or implemented in series. Layering means using different categories of ICs concurrently to enhance the protectiveness of the remedy. Implementation of ICs in series may be applied to ensure both the short- and long-term effectiveness of the remedy. As a single remedy, ICs are typically implemented as a long-term approach. The following subsections describe and evaluate ICs, which could be applied at Site 12.

4.3.2.1 Legal Mechanisms

Legal mechanisms involve legal instruments placed in the chain of title of the site property. Some legal mechanisms can be implemented without the intervention of any federal, state, or local regulatory agency. Legal mechanisms include restrictive covenants, negative easements, equitable servitudes, and deed restrictions.

A deed restriction is a clause or series of clauses in a deed which restrict the future use of the property. Deed restrictions may impose a vast array of limitations and conditions, such as restricting the types of buildings which can be built or restricting the types of uses for a piece of property. Because of the possibility of potential property transfer in the future, implementation of deed restrictions will be considered as a possible IC component for the SWDAs at site 12.

4.3.2.2 Administrative Mechanisms

Administrative mechanisms use the regulatory authority of a government entity to impose restrictions on citizens or property under its jurisdiction. Examples of government controls include zoning restrictions, groundwater use restrictions, adopted local land use plans, construction permitting, or other existing land use management systems which may be used to ensure compliance with use restrictions.

There is an existing land use plan, the Draft NAVSTA TI Reuse Plan ([CCSF 1996](#)) which does not have enforcement components; therefore, it is not retained for further evaluation as a component of a remedial alternative. However, the NAVSTA TI Reuse Plan is still considered useful as a planning tool.

Informational tools provide information or notification that residual contamination may remain on site. Common examples include state registries of contaminated properties, deed notices, and advisories. The most commonly used are deed notices, which refer to a non-enforceable, purely informational document filed in public land records which alert persons searching the records. Because they are non-enforceable, informational devices are most likely to be used as a secondary layer to enhance the overall reliability of other ICs. Therefore, deed notices will be considered as a possible IC component for the SWDAs at Site 12.

4.4 OFF-SITE DISPOSAL

Excavated soil would be sampled and analyzed to determine its waste classification. Excavated material then would be loaded and hauled to a permitted off-site disposal facility, in accordance with the NCP off-site disposal regulation (40 CFR 300.440).

4.5 PROTECTIVE LAYER (BACKFILL) AND SITE RESTORATION

After excavation is complete, a geotextile fabric and a protective layer of imported clean backfill would be placed over the top of soil remaining in the excavation (Alternatives 1 through 4) to prevent direct contact by residents. Backfilling would occur after confirmation sampling has been conducted in the excavated areas. Imported fill would be properly compacted. After the excavation has been backfilled, the impacted areas would be restored.

4.6 POST-CLOSURE MONITORING OF LAND USE AND DRAINAGE AND EROSION CONTROL

For all alternatives, O&M and post-closure monitoring costs have been included to account for ongoing maintenance of drainage and erosion control topographical features of the sites and preparation of a status report every 5 years for Site 12, after the RI/FS and record of decision (ROD) are completed. For purposes of the cost opinion for this EE/CA, the monitoring period was assumed to be 30 years, a possible life time for existing housing units within Site 12. The actual monitoring period would be developed in the RI/FS and ROD for Site 12.

4.7 ALTERNATIVE 1: SOIL EXCAVATION TO 2 FEET BGS (EXCLUDING HARDSCAPE)

A description of Alternative 1 and an evaluation of its effectiveness, implementability, and cost are provided in the following sections.

4.7.1 Description

Alternative 1 is illustrated in [Figure 4-1](#). Major components of this alternative would be as follows:

1. Excavation of chemical- and solid waste-contaminated soil in the SWDAs to a maximum depth of 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet bgs. Soil beneath roadways will be excavated. Hardscaped areas will not be excavated.
2. Excavation of the methane-impacted area.
3. Backfilling of excavated areas with imported material and site restoration.
4. Disposal of chemical- and solid waste-contaminated soil at a permitted off-site facility.
5. Post-closure monitoring of land use and drainage and erosion control.

Excavation would occur in all roadways, backyards and common areas within the SWDAs, except in concrete hardscape areas such as the driveways. Excavations would be advanced to a depth of 2 feet bgs in the known SWDAs to prevent direct contact with potential underlying hazardous substances and solid waste. The excavation in the known SWDAs may require a moderate amount of mechanical support. Hand digging will be done to remove solid waste-contaminated soil 6 inches below utilities. Only utilities above 4 feet bgs within unpaved areas will be addressed.

4.7.2 Effectiveness

Evaluation of this alternative for the five effectiveness criteria is discussed in the following paragraphs.

4.7.2.1 Overall Protection of Human Health and the Environment

This alternative would protect human health and the environment, because it would involve excavating and removing chemical- and solid waste-contaminated soil to a depth of 2 feet bgs from within the SWDAs and replacing it with clean fill thereby minimizing the potential for exposure to residents and future utility workers.

4.7.2.2 Compliance with ARARs

This alternative would comply with identified ARARs.

This alternative, as with all alternatives involving soil excavation, would comply with chemical-specific ARARs for determining whether excavated materials contain hazardous waste, as discussed in [Appendix E](#). In most cases, material found to be hazardous would be stored within the area of contamination before off-site disposal and therefore would not be subject to RCRA hazardous waste management requirements. If hazardous material cannot be stored within the area of contamination, it will be stored outside the area of contamination but in compliance with RCRA hazardous waste management requirements. Alternatives must comply with ARARs identified for on-site actions only. Off-site disposal must comply with all applicable requirements, including, as appropriate, Department of Transportation requirements at Title 49 of CFR Part 171; however, because off-site disposal is not an on-site action, applicable requirements are not addressed as ARARs.

Off-site disposal of contaminated soil would be consistent with the San Francisco BCDC (1968); therefore, all alternatives would comply with location-specific ARARs. All alternatives also would comply with BAAQMD regulations.

All evaluated alternatives would comply with action-specific ARARs for monitoring changes in post-closure land use and for designing and maintaining drainage and erosion control systems that prevent public contact with solid waste remaining in the SWDAs and residential backyards. As applicable, each alternative assumes annual inspections for changes in land use and annual inspections of capped surfaces. Alternatives that only address the hardscape areas assume annual repairs of about 10 percent of the vegetative cover and alternatives that address both hardscape and unpaved areas assume annual repairs to about 10 percent of vegetative cover, as well as the hardscape surfaces at 10-year intervals.

4.7.2.3 Long-Term Effectiveness and Permanence

Factors evaluated under long-term effectiveness and permanence include (1) the magnitude of residual risks and (2) the adequacy and reliability of controls. Chemical- and solid waste-contaminated soil would be permanently removed to a depth of 2 feet bgs from the SWDAs, so no residual risk to future residents and workers would remain above a depth of 2 feet bgs in the roadway and unpaved areas. The long-term adequacy and reliability of controls for excavated material would depend on the controls of the off-site disposal facility. The long-term effectiveness of methane removal would depend on excavation of the source waste that is

generating the methane or repairing any leaks in natural gas lines that may be contributing to the elevated methane levels.

4.7.2.4 *Reduction of Toxicity, Mobility, or Volume through Treatment*

Implementation of this alternative would not reduce the volume or toxicity of chemicals and solid waste present in excavated soil; however, the on-site volume of contaminated soil would be reduced. This alternative would rely on engineering controls of the permitted off-site disposal facility to limit mobility of excavated chemicals and solid waste. This alternative also would rely on the soil cover and restrictions to limit penetration into the remaining solid waste. By limiting penetration by residents, the potential to mobilize and move chemicals and solid waste left on site would be limited.

4.7.2.5 *Short-Term Effectiveness*

Three factors are considered when assessing short-term effectiveness: (1) protection of the community and workers during removal actions; (2) environmental impacts resulting from construction and implementation of the alternative; and (3) time required to complete the removal action.

Although most of the buildings adjacent to common areas are currently unoccupied, in some cases, occupied buildings do occur where backyards and common areas would be excavated. Because some of the buildings are occupied where backyards are to be excavated, residents in those buildings may have to be temporarily displaced during the backyard work. In the case that residents should be displaced the Navy will coordinate with the housing management company in advance to minimize any disruptions.

The community may face short-term risks during excavation and removal activities resulting from inhalation of fugitive dust and direct contact with excavated soil. The local community also may face additional short-term impacts resulting from increased truck traffic during excavation and backfilling and increased inconvenience in using backyards while excavations are open. These impacts could include noise, increased traffic, and temporary disruption of utility services. Trucks would be decontaminated before they leave controlled areas to avoid spreading contamination off site. Contact with exposed utilities would be avoided.

Measures would be taken during excavation, staging, and loading of contaminated soil to reduce and control short-term risks. Risks would be minimized through use of dust suppression measures (water and physical barriers) and prevention of unauthorized access to work areas. However, there is an immediate reduction in risk levels right after contaminated soil is removed from the site. Excavation of the methane-impacted areas will be conducted using appropriate health and safety measures to protect both the community and workers from potential explosion hazards. In addition, appropriate equipment decontamination procedures would be used to prevent the unintentional transport of contaminated soil.

About 14 weeks would be required to mobilize necessary equipment, prepare the site for excavation, excavate chemical- and solid waste-contaminated soil, transport and dispose of excavated material off site, restore the site, and demobilize.

4.7.3 Implementability

This alternative is evaluated against two criteria to determine its implementability: (1) technical feasibility and (2) commercial availability. Alternative 1 is technically easy to implement. This alternative would use standard construction methods to excavate chemical- and solid waste-contaminated soil. No excavation would occur below the water table. However, excavation will likely occur near buried utility lines and would be completed to 2 feet bgs to the fullest extent practical with small equipment or by hand. In areas where utilities are located, excavation will proceed to approximately 6 inches below them up to a maximum depth of 4 feet bgs. This will be accomplished using small mechanical equipment or hand digging. Mechanical support to underground utilities during excavation will be necessary. After excavation and transportation of chemical- and solid waste-contaminated soil and site restoration, O&M would be required to maintain the integrity of the soil cover. Contractors are readily available and have the equipment and specialists necessary to excavate chemical- and solid waste-contaminated soil. The capacity of the off-site disposal facilities is adequate to handle the volume of excavated soil.

4.7.4 Cost

Details for the cost opinion for Alternative 1 are provided in [Appendix F](#). The cost opinion for Alternative 1 is \$7.3 million. The costs associated with this alternative include site preparation, excavation of approximately 15,500 yd³ of soil and debris, confirmation sampling, transportation and disposal of excavated material, site restoration (backfill, fencing, and seeding), design and implementation of ICs and post-closure care.

4.8 ALTERNATIVE 2: SOIL EXCAVATION TO 2 FEET BGS (INCLUDING HARDSCAPE)

A description of Alternative 2 and an evaluation of its effectiveness, implementability, and cost are provided in the following sections. Excavation is the same for Alternatives 1 through 4 for the SWDAs and was discussed in [Section 4.2](#).

4.8.1 Description

Alternative 2 is illustrated in [Figure 4-2](#). Major components of this alternative would be as follows:

1. Excavation of chemical- and solid waste-contaminated soil in the SWDAs to a maximum depth of 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility, if present. Hardscaped areas including roadways will also be excavated.
2. Excavation of the methane-impacted area.

3. Backfilling of excavated areas with imported material and site restoration.
4. Disposal of chemical- and solid waste-contaminated soil at a permitted off-site facility.
5. Post-closure monitoring of land use and drainage and erosion control.

Excavation would occur in all backyards and common areas within the SWDAs, including hardscape. Excavations would be advanced to a depth of 2 feet bgs in the SWDAs to prevent direct contact with potential underlying hazardous substances and solid waste. The excavation in the SWDAs may require a moderate amount of mechanical support where utilities are located. Hand digging will be done to remove solid waste-contaminated soil 6 inches below the utilities. Utilities above 4 feet bgs within unpaved and hardscaped areas will be addressed.

4.8.2 Effectiveness

Evaluation of this alternative for the five effectiveness criteria is discussed in the following paragraphs.

4.8.2.1 Overall Protection of Human Health and the Environment

This alternative would protect human health and the environment, because it would involve excavating and removing chemical- and solid waste-contaminated soil to a depth of 2 feet bgs from within the SWDAs including areas currently covered by hardscape, thereby minimizing the potential for exposure to residents and future utility workers. This alternative is more protective than Alternative 1 due to the larger volume of solid waste-contaminated soil to be excavated, hardscape being replaced and additional pathways being broken for the shallow utility worker beneath hardscape areas.

4.8.2.2 Compliance with ARARs

This alternative would comply with all ARARs identified and discussed in [Section 4.7.2.2](#).

4.8.2.3 Long-Term Effectiveness and Permanence

Factors evaluated under long-term effectiveness and permanence include (1) the magnitude of residual risks and (2) the adequacy and reliability of controls. Chemical- and solid waste-contaminated soil would be permanently removed to a depth of 2 feet bgs from both hardscape and unpaved areas of the known SWDAs, so no residual risk to future residents and workers would remain above a depth of 2 feet bgs. The long-term adequacy and reliability of controls for excavated material would depend on the controls of the off-site disposal facility. The long-term effectiveness of methane removal would depend on excavation of the source waste that is generating the methane or repairing any leaks in natural gas lines that may be contributing to the elevated methane levels.

4.8.2.4 *Reduction of Toxicity, Mobility, or Volume through Treatment*

The discussion about the reduction of toxicity, mobility, or volume through treatment presented in [Section 4.7.2.4](#) for Alternatives 1 applies to Alternative 2 as well. However, the amount of excavation in Alternative 2 is greater than in Alternative 1; as a result, the on-site volume of contaminated soil would be reduced.

4.8.2.5 *Short-Term Effectiveness*

The discussion about short-term effectiveness presented in [Sections 4.7.2.5](#) for Alternative 1 applies to Alternative 2 as well. However, the amount of excavation in Alternative 2 is greater than in Alternative 1; as a result, the potential for disturbances to occupants from noise, dust, trucking, excavation, and utility disruption is greater. In addition, because some of the buildings are occupied where backyards are to be excavated, residents in those buildings may have to be relocated during the backyard work. In the case that residents should be displaced, the Navy will coordinate with the housing management company in advance to minimize any disruptions.

About 15 weeks would be required to mobilize necessary equipment, prepare the site for excavation, excavate chemical- and solid waste-contaminated soil, transport and dispose of excavated material off site, restore the site, and demobilize.

4.8.3 *Implementability*

This alternative is evaluated against two criteria to determine its implementability: (1) technical feasibility and (2) commercial availability. Alternative 2 is technically easy to implement. This alternative would use standard construction methods to excavate chemical- and solid waste-contaminated soil. No excavation would occur below the water table. However, excavation will likely occur near buried utility lines and would be completed to 2 feet bgs to the fullest extent practical, with an additional 6 inches below utilities with small equipment or by hand up to a maximum depth of 4 feet bgs. Mechanical support to underground utilities during excavation will be necessary. After excavation and transportation of chemical- and solid waste-contaminated soil and site restoration, O&M would be required to maintain the integrity of the soil cover. Contractors are readily available and have the equipment and specialists necessary to excavate chemical- and solid waste-contaminated soil. The capacity of the off-site disposal facilities is adequate to handle the volume of excavated soil.

4.8.4 *Cost*

Details for the cost opinion for Alternative 2 are provided in [Appendix F](#). The cost opinion for Alternative 2 is \$7.9 million. The costs associated with this alternative include site preparation, excavation of about 16,900 yd³ of soil and debris, confirmation sampling, transportation and disposal of excavated material, site restoration (backfill, fencing, and seeding), design and implementation of ICs and post-closure care.

4.9 ALTERNATIVE 3: SOIL EXCAVATION TO 4 FEET BGS

A description of Alternative 3 and an evaluation of its effectiveness, implementability, and cost are provided in the following sections. Excavation is the same for Alternatives 1 through 4 for the SWDAs and was discussed in [Section 4.2](#).

4.9.1 Description

Alternative 3 is illustrated in [Figure 4-3](#). Major components of this alternative would be as follows:

1. Excavation of chemical- and solid waste-contaminated soil in the SWDAs to a depth equal to 4 feet bgs. The excavation area includes backyards, common areas, and roadways within the SWDAs. No soil excavation under hardscape is planned for this alternative.
2. Excavation of the methane-impacted area.
3. Backfilling of excavated areas with imported clean material and site restoration.
4. Disposal of chemical- and solid waste-contaminated soil at a permitted off-site facility.
5. Post-closure monitoring of land use and drainage and erosion control.

Excavation would occur in all backyards and common areas within the SWDAs, not including hardscape areas such as concrete driveways and sidewalks. Excavations would be advanced to a maximum depth of 4 feet bgs within the known SWDAs. The depth of excavation in the backyards may require a moderate amount of mechanical support or removal and replacement of underground utilities where utilities are located. Hand digging will be done to remove solid waste-contaminated soil in close proximity to the utilities. Utilities above 4 feet bgs within the unpaved areas including roadways will be addressed.

4.9.2 Effectiveness

Evaluation of this alternative for the five effectiveness criteria is discussed in the following paragraphs.

4.9.2.1 Overall Protection of Human Health and the Environment

This alternative would protect human health and the environment, because it would involve excavating and removing chemical- and solid waste-contaminated soil to 4 feet bgs from within the SWDAs except in hardscape areas, thereby minimizing the potential for exposure to residents and utility workers.

4.9.2.2 Compliance with ARARs

This alternative would comply with all ARARs identified and discussed in [Section 4.7.2.2](#).

4.9.2.3 Long-Term Effectiveness and Permanence

Factors evaluated under long-term effectiveness and permanence include (1) the magnitude of residual risks and (2) the adequacy and reliability of controls. Chemical- and solid waste-contaminated soil would be permanently removed to 4 feet bgs from within the unpaved and roadway areas of the SWDAs, so no residual risk to future residents and workers would remain above 4 feet bgs within these areas. The long-term adequacy and reliability of controls for excavated material would depend on the controls of the off-site disposal facility. The long-term effectiveness of methane removal would depend on excavation of the source waste that is generating the methane or repairing any leaks in natural gas lines that may be contributing to the elevated methane levels.

4.9.2.4 Reduction of Toxicity, Mobility, or Volume through Treatment

The discussion about the reduction of toxicity, mobility, or volume through treatment presented in [Section 4.7.2.4](#) for Alternative 1 applies to Alternative 3 as well. However, the amount of excavation in Alternative 3 is greater than in Alternatives 1 and 2; as a result, the on-site volume of contaminated soil would be reduced.

4.9.2.5 Short-Term Effectiveness

The discussion about short-term effectiveness presented in [Sections 4.7.2.5](#) for Alternative 1 applies to Alternative 3 as well. However, the amount of excavation in Alternative 3 is greater than in Alternatives 1 and 2; as a result, the potential for disturbances to occupants from noise, dust, trucking, excavation, and utility disruption is greater. In addition, because some of the buildings are occupied where backyards are to be excavated, residents in those buildings may have to be relocated during the backyard work.

About 25 weeks would be required to mobilize necessary equipment, prepare the site for excavation, excavate chemical- and solid waste-contaminated soil, transport and dispose of excavated material off site, restore the site, and demobilize.

4.9.3 Implementability

This alternative is evaluated against two criteria to determine its implementability: (1) technical feasibility and (2) commercial availability. Alternative 3 is technically easy to implement. This alternative would use standard construction methods to excavate chemical- and solid waste-contaminated soil. No excavation would occur below the water table. However, excavation will likely occur near buried utility lines and would be completed to the fullest extent practical with small equipment or by hand. Mechanical support to underground utilities during excavation may be necessary. After excavation and transportation of chemical- and solid waste-contaminated soil and site restoration, O&M would be required to maintain the integrity of

the soil cover. Contractors are readily available and have the equipment and specialists necessary to excavate chemical- and solid waste-contaminated soil. The capacity of the off-site disposal facilities is adequate to handle the volume of excavated soil.

4.9.4 Cost

Details for the cost opinion for Alternative 3 are provided in [Appendix F](#). The cost opinion for Alternative 3 is \$11.2 million. The costs associated with this alternative include site preparation, excavation of about 31,000 yd³ of soil and debris, confirmation sampling, transportation and disposal of excavated material, site restoration (backfill, fencing, and seeding), design and implementation of ICs and post-closure care.

4.10 ALTERNATIVE 4: SOIL EXCAVATION TO 4 FEET BGS (INCLUDING HARDSCAPE)

A description of Alternative 4 and an evaluation of its effectiveness, implementability, and cost are provided in the following sections. Excavation is the same for Alternatives 1 through 4 for the known SWDAs and was discussed in [Section 4.2](#).

4.10.1 Description

Alternative 4 is illustrated in [Figure 4-4](#). Major components of this alternative would be as follows:

1. Excavation of chemical- and solid waste-contaminated soil in the SWDAs to a depth equal to 4 feet bgs. Soil excavation under all unpaved, roadway, and hardscape areas is planned for this alternative.
2. Excavation of the methane-impacted area.
3. Backfilling of excavated areas with imported material and site restoration.
4. Disposal of chemical- and solid waste-contaminated soil at a permitted off-site facility.
5. Post-closure monitoring of land use and drainage and erosion control.

Excavation would occur in all backyards and common areas within the SWDAs, including driveways and other hardscape areas. Excavations would be advanced to 4 feet bgs in the SWDAs. The depth of excavation may require a moderate amount of mechanical support or removal and replacement of underground utilities where utilities are located. Utilities above 4 feet bgs within the unpaved and hardscaped areas will be addressed.

4.10.2 Effectiveness

Evaluation of this alternative for the five effectiveness criteria is discussed in the following paragraphs.

4.10.2.1 Overall Protection of Human Health and the Environment

This alternative would protect human health and the environment, because it would involve excavating and removing chemical- and solid waste-contaminated soil to 4 feet bgs from within the SWDAs including hardscape areas, thereby minimizing the potential for exposure to residents and future utility workers.

4.10.2.2 Compliance with ARARs

This alternative would comply with all ARARs identified and discussed in [Section 4.7.2.2](#).

4.10.2.3 Long-Term Effectiveness and Permanence

Factors evaluated under long-term effectiveness and permanence include (1) the magnitude of residual risks and (2) the adequacy and reliability of controls. Chemical- and solid waste-contaminated soil would be permanently removed to 4 feet bgs from within the SWDAs, so no residual risk to future residents and workers would remain above 4 feet bgs within the SWDAs. The long-term adequacy and reliability of controls for excavated material would depend on the controls of the off-site disposal facility. The long-term effectiveness of methane removal would depend on excavation of the source waste that is generating the methane or repairing any leaks in natural gas lines that may be contributing to the elevated methane levels.

4.10.2.4 Reduction of Toxicity, Mobility, or Volume through Treatment

The discussion about the reduction of toxicity, mobility, or volume through treatment presented in [Section 4.7.2.4](#) for Alternative 1 applies to Alternative 4 as well. However, the amount of excavation in Alternative 4 is greater than in Alternatives 1 through 3; as a result, the on-site volume of contaminated soil would be reduced.

4.10.2.5 Short-Term Effectiveness

The discussion about short-term effectiveness presented in [Sections 4.7.2.5](#) for Alternative 1 applies to Alternative 4 as well. However, the amount of excavation in Alternative 4 is greater than in Alternatives 1 through 3; as a result, the potential for disturbances to occupants from noise, dust, trucking, excavation, and utility disruption is greater. In addition, because some of the buildings are occupied where backyards are to be excavated, residents in those buildings may have to be relocated during the backyard work.

About 27 weeks would be required to mobilize necessary equipment, prepare the site for excavation, excavate chemical- and solid waste-contaminated soil, transport and dispose of excavated material off site, restore the site, and demobilize.

4.10.3 Implementability

This alternative is evaluated against two criteria to determine its implementability: (1) technical feasibility and (2) commercial availability. Alternative 4 is technically easy to implement. This alternative would use standard construction methods to excavate chemical- and solid waste-contaminated soil. No excavation would occur below the water table. However, excavation will likely occur near buried utility lines and would be completed to the fullest extent practical with small equipment or by hand. Mechanical support to underground utilities during excavation may be necessary. After excavation and transportation of chemical- and solid waste-contaminated soil and site restoration, O&M would be required to maintain the integrity of the soil cover. Contractors are readily available and have the equipment and specialists necessary to excavate chemical- and solid waste-contaminated soil. The capacity of the off-site disposal facilities is adequate to handle the volume of excavated soil.

4.10.4 Cost

Details for the cost opinion for Alternative 4 are provided in [Appendix F](#). The cost opinion for Alternative 4 is \$12.3 million. The costs associated with this alternative include site preparation, excavation of about 33,800 yd³ of soil and debris, confirmation sampling, transportation and disposal of excavated material, site restoration (backfill, fencing, and seeding), design and implementation of ICs and post-closure care.

4.11 ALTERNATIVE 5: CAPPING ALL BACKYARDS AND COMMON AREAS WITH Poured-IN-PLACE CONCRETE

4.11.1 Description

Alternative 5 is illustrated in [Figure 4-5](#). Major components of this alternative would be as follows:

1. Clearing and grading of topsoil
2. Excavation of the methane-impacted area
3. Installation of a storm water drainage system and gas venting system
4. Capping backyards and unpaved common areas with a cast-in-place concrete slab
5. Disposal of chemical- and solid waste-contaminated topsoil at a permitted off-site facility
6. Post-closure monitoring of land use and drainage and erosion control

Construction of concrete capping would occur in all areas within the SWDAs not already covered by hardscape. Preparation would involve; removing existing patios (if necessary), clearing; excavating topsoil (assumed to be the first 4 inches of the ground surface); placing replacement subgrade soil; and grading the surface to be capped. Drainage grates will be

installed in each backyard and will be connected with the existing storm water drainage system at the site. Current soil gas and trenching results indicate the presence of solid waste and methane within the SWDAs. Once covered by an impermeable barrier the methane may buildup in concentration below the ground surface, thereby creating a potential explosion hazard for construction or utility workers. Therefore, gas vents would be installed within the SWDAs to prevent buildup of methane below the cap. The vents will be passive and provide an escape pathway for any methane buildup (no matter how small or unlikely) to escape from below the ground surface. The SWDAs would be capped with a 4-inch-thick, mesh-reinforced, poured-in-place concrete slab. The slab would be sloped to drain storm water away from buildings. Backyard restoration would include installation of new wood fencing that is similar to the original wood fence.

4.11.2 Effectiveness

Evaluation of this alternative for the five effectiveness criteria is discussed in the following paragraphs.

4.11.2.1 Overall Protection of Human Health and the Environment

Because exposure pathways for residents to contaminants in soil are through direct contact, ingestion, and dust inhalation, construction of a poured-in-place concrete cap covering the entire SWDA would prevent long-term residential exposure to possible contaminants in soil. The concrete provides a relatively durable barrier to underlying contaminants. The concrete cap also would prevent erosion. Restrictions would be needed to ensure that residents would be prohibited from engaging in any type of activity that would involve disturbance of the cap. In addition, ICs would be needed to address excavated soils removed during necessary maintenance activities (for example, utility maintenance).

4.11.2.2 Compliance with ARARs

This alternative would comply with ARARs identified and discussed in [Section 4.7.2.2](#).

4.11.2.3 Long-Term Effectiveness and Permanence

Factors evaluated under long-term effectiveness and permanence include (1) the magnitude of residual risks and (2) the adequacy and reliability of controls.

Construction and maintenance of a concrete cap would provide adequate long-term protection to a resident as long as the integrity of the cap was maintained. Any remaining chemical- and solid waste-contaminated soil is not expected to degrade very much with time. Long-term adequacy and reliability requirements of the backyard cap would be set and maintained as long as residents occupy the area. The concrete cap would be low maintenance and would be reliable in preventing exposure. However, a rigid cover could crack due to underlying settlement or seismic activity. Also, the long-term effectiveness of methane removal would depend on excavation of the source waste that is generating the methane or repairing any leaks in natural gas lines that may be contributing to the elevated methane levels. In areas where subsurface methane exists

migration could occur if methane generation continues. This is because the cap would prevent methane from venting to the surface. Monitoring may demonstrate that an extraction system may be required to prevent lateral migration.

Capping would not provide protection to a utility worker, although the associated ICs could be used to prevent exposure to a utility worker.

4.11.3.4 *Reduction of Toxicity, Mobility, or Volume through Treatment*

This alternative would rely on the concrete cap and restrictions to limit penetration into the remaining solid waste below the cap. By limiting penetration by residents, the potential to mobilize and move chemicals and solid waste left on site would be reduced. Reduction of toxicity or volume through treatment would not occur.

4.11.2.5 *Short-Term Effectiveness*

Three factors are considered when assessing short-term effectiveness: (1) protection of the community during removal actions, (2) environmental impacts resulting from construction and implementation of the alternative, and (3) time required to complete the removal action.

Some of the buildings where the SWDAs would be capped are occupied. The local community may face short-term impacts resulting from increased truck traffic during excavation and concrete placement and increased inconvenience in using backyards while work is being conducted. These impacts could include noise, increased traffic, and temporary loss of backyard use.

Measures would be taken during excavation, staging, and loading of contaminated soil to reduce and control short-term risks. These measures include restricting access to work areas, implementing dust suppression measures, and using engineering controls to minimize any environmental impacts. In addition, appropriate equipment decontamination procedures would be used to prevent the transport of contaminated soil.

About 16 weeks would be required to mobilize necessary equipment, prepare unpaved areas for capping, remove topsoil, install backyard capping and drainage system, transport and dispose of excavated material off site, restore the site, and demobilize.

4.11.3 *Implementability*

This alternative is evaluated against two criteria to determine its implementability: (1) technical feasibility and (2) commercial availability. Alternative 5 would be technically easy to implement. This alternative would use standard construction methods to cap backyards. After excavation and transportation of chemical- and solid waste-contaminated topsoil and site restoration, O&M of the cap might be required. Contractors are readily available and have the equipment and specialists necessary to excavate chemical- and solid waste-contaminated topsoil and construct concrete capping. The capacity of the off-site disposal facilities is adequate to handle the volume of excavated topsoil.

4.11.4 Cost

Details for the cost opinion for Alternative 5 are provided in [Appendix F](#). The cost opinion for Alternative 5 is \$3.6 million. Costs associated with this alternative include site preparation, excavation of about 3,230 yd³ of debris contaminated soil, construction of a poured-in-place concrete cap and drainage system, transportation and disposal of excavated material, site restoration (fencing), design and implementation of ICs and post-closure care.

5.0 COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

In this section, the five remedial alternatives analyzed in [Section 4.0](#) are compared against each other to evaluate the relative performance of each alternative in relation to each of the criteria. The criteria used in this comparison are the same as in [Section 4.0](#), namely, effectiveness, implementability, and cost. The discussion of each alternative proceeds from the alternative that best meets the evaluation criteria to the one that least satisfies the criteria. [Table 5-1](#) summarizes the ratings for each alternative and shows the comparative ratings for each alternative for each of the criterion.

5.1 EFFECTIVENESS OF ALTERNATIVES

This section compares the five remedial alternatives described in [Section 4.0](#). Each alternative is evaluated against five criteria to determine its effectiveness: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume through treatment; and (5) short-term effectiveness. Each of these criteria is discussed in the following paragraphs.

5.1.1 Overall Protection of Human Health and the Environment

Alternative 4 would provide the greatest overall protection to human health and the environment. In Alternative 4, backyards and common areas including the existing hardscape would be excavated to 4 feet bgs and backfilled with clean soil, preventing exposure to chemical- and solid waste-contaminated soil. Alternative 4 is the most protective, because both residents and future utility workers would be protected through removal of soil above 4 feet bgs in hardscape and unpaved areas within the known solid waste areas, with minimal reliance on ICs.

Although less protective than Alternative 4, Alternatives 1, 2, 3, and 5 would provide adequate protection to human health and the environment while relying more upon ICs.

5.1.2 Compliance with ARARs

All alternatives would comply with all ARARS identified and discussed in [Section 3.4](#) and [Appendix E](#).

5.1.3 Long-Term Effectiveness and Permanence

Alternative 4 would provide the best long-term and permanence, because the largest volume of chemical- and solid waste-contaminated soil would be removed and transported for disposal at a permitted off-site disposal facility, where engineering controls are already in place. Alternative 4 would remove soil from within the known SWDAs including the existing hardscape to 4 feet bgs. ICs will further prevent residents from coming in contact with chemical- and solid waste- contaminated soil left in place below 4 feet bgs.

Alternative 3 would provide comparable long-term effectiveness and permanence as Alternative 4, because chemical- and solid waste-contaminated soil would also be removed to 4 feet bgs over a comparable area and transported for disposal at a permitted off-site disposal facility.

Alternative 2 would provide the next best long-term effectiveness and permanence, because the top 2 feet of chemical- and solid waste-contaminated soil would be removed from within the SWDAs including the existing hardscape areas and transported for disposal at a permitted off-site disposal facility.

Alternative 5 would provide slightly less long-term effectiveness and permanence as Alternative 2, because the chemical- and solid waste-contaminated soil would be capped within the SWDAs and a greater reliance on ICs would be necessary.

Alternative 1 would provide an adequate amount of long-term and permanent protection because top 2 feet of chemical- and solid waste-contaminated soil would be removed from the SWDAs not including the existing hardscape and transported for disposal at a permitted off-site disposal facility. Alternative 1 would rely the most upon ICs to prevent exposure.

Alternatives 3, 2, 5, and 1 are less effective (in a descending order) than Alternative 4, because of the volume of contaminated soil removed.

5.1.4 Reduction in Toxicity, Mobility, and Volume through Treatment

Under all alternatives, the volume and toxicity of chemical- and solid waste-contaminated soil would not be reduced through treatment, although the on-site volume of contaminated material would be reduced in Alternatives 4, 3, 2, and 1 in a descending order. In all of these alternatives, disposal of excavated soil at a permitted off-site facility with engineering controls, such as impermeable liners, interim covers, final caps, and leachate collection systems, would be effective in reducing the mobility of chemicals and solid waste. The mobility of chemicals and solid waste remaining on site would be reduced in each alternative; however, Alternative 4 would result in the greatest reduction.

Alternative 5 would reduce the mobility of chemicals and solid waste left on site by construction of a cap in all backyards and common areas.

5.1.5 Short-Term Effectiveness

Under all alternatives, the community and workers might face short-term risks during excavation or capping activities; however, measures would be taken to reduce risks such as controlling site access and providing protective equipment and awareness training to workers. The local community might be faced with additional short-term impacts resulting from increased truck traffic during excavation and backfilling, or capping with concrete slab, and increased inconvenience in using backyards while excavations are open and buried utilities are exposed. These impacts could include noise, dust, increased traffic, and temporary disruption of utility services. Alternative 4 would have the greatest short-term impact because a larger volume is

being excavated and it would take longer. For Alternatives 1, 2, 3, and 4, the residents of some buildings may have to be temporarily relocated while work is performed adjacent to their buildings

5.2 IMPLEMENTABILITY OF ALTERNATIVES

All alternatives are technically easy to implement, and many contractors are readily available and have the equipment and specialists necessary to excavate or cap chemical- and solid waste-contaminated soil. Alternative 5 would be easiest to implement, because it does not require excavation and transport of contaminated material. Alternative 4 would be slightly more difficult to implement, because it requires the most excavation.

5.3 COST OF ALTERNATIVES

The cost opinion for each alternative is as follows:

| Alternative | Description | Excavated Area (ft ²) | Estimated excavation Volume (cy) | Cost Opinion (in millions) |
|-------------|---|-----------------------------------|----------------------------------|----------------------------|
| 1 | Soil excavation to 2 feet bgs including beneath roadways. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet. Soils below concrete hardscape will not be excavated. | 209,160 | 15,493 | \$7.3 |
| 2 | Soil excavation to 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet. Soils below hardscape will also be excavated. | 228,126 | 16,898 | \$7.9 |
| 3 | Soil excavation to 4 feet bgs. Soil excavation beneath utilities and roadways up to a maximum depth of 4 feet, excluding concrete hardscape. | 209,160 | 30,987 | \$11.2 |
| 4 | Soil excavation to 4 feet bgs including roadways and concrete hardscape. | 228,126 | 33,796 | \$12.3 |
| 5 | Capping | 209,160 | 3,231 | \$3.6 |

Notes:

bgs Below ground surface cy Cubic yard ft² Square feet

The range in cost opinions for the five alternatives varies from \$3.6 to \$12.3 million. Among the active remediation options, Alternative 5 has the lowest cost of \$3.6 million, while Alternative 4 has the highest cost of \$12.3 million.

6.0 SUMMARY

This revised EE/CA was performed in accordance with current EPA and Navy guidance documents for a NTCRA under CERCLA. The purpose of this revised EE/CA was to identify and analyze alternative removal actions to address chemical- and solid waste-contaminated soil within the SWDAs at Site 12. In addition, the site description, background, risk evaluation, and RAOs were presented.

Five alternatives were evaluated to address contaminants within the SWDAs. Each alternative was evaluated considering its effectiveness, implementability, and cost. Each alternative would be effective in protection of human health and each alternative would be implementable. With regard to cost, the capping alternative presents the lowest cost while excavation to 4 feet in all areas of the SWDAs is the most expensive.

Before the Navy selects a preferred alternative, regulatory agency and public input is necessary. The public will have an opportunity to review and comment on the revised EE/CA during a 30-day public comment period. State and community acceptance will be evaluated after the public comment period and will be discussed in an Action Memorandum documenting the removal action decision.

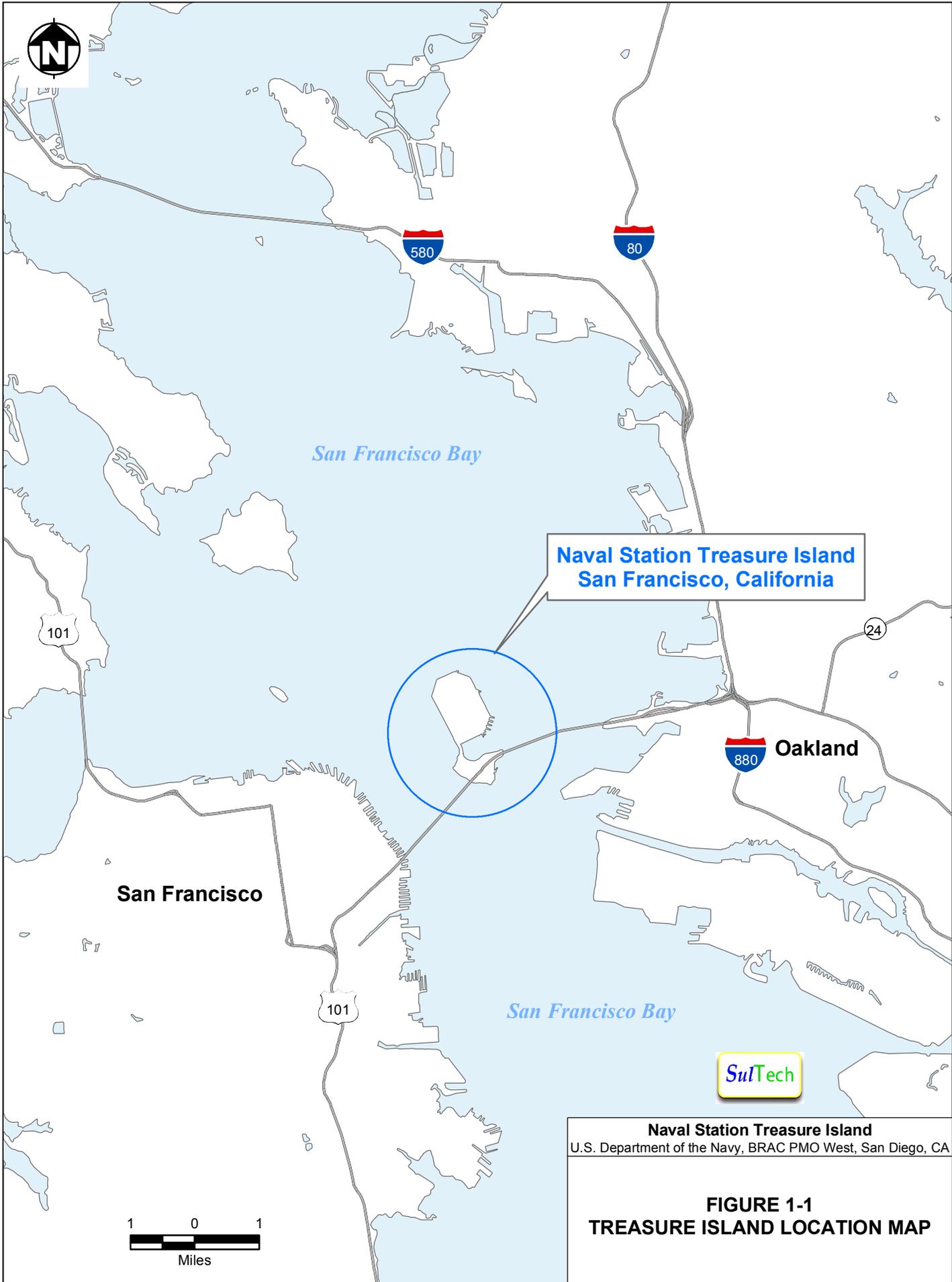
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FIGURES



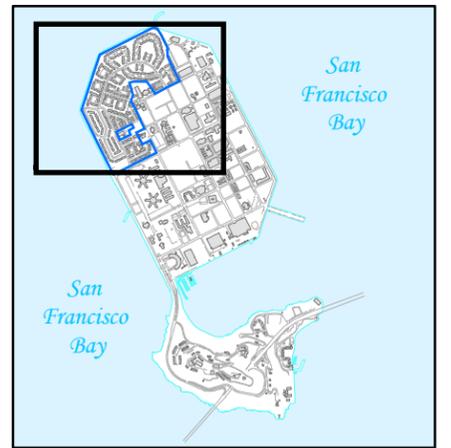


Solid Waste Disposal Area 1231/1233

Solid Waste Disposal Area 1207/1209

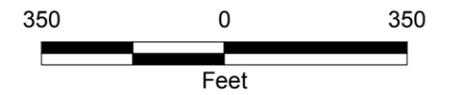
Solid Waste Disposal Area A & B

Solid Waste Disposal Area Bigelow Court



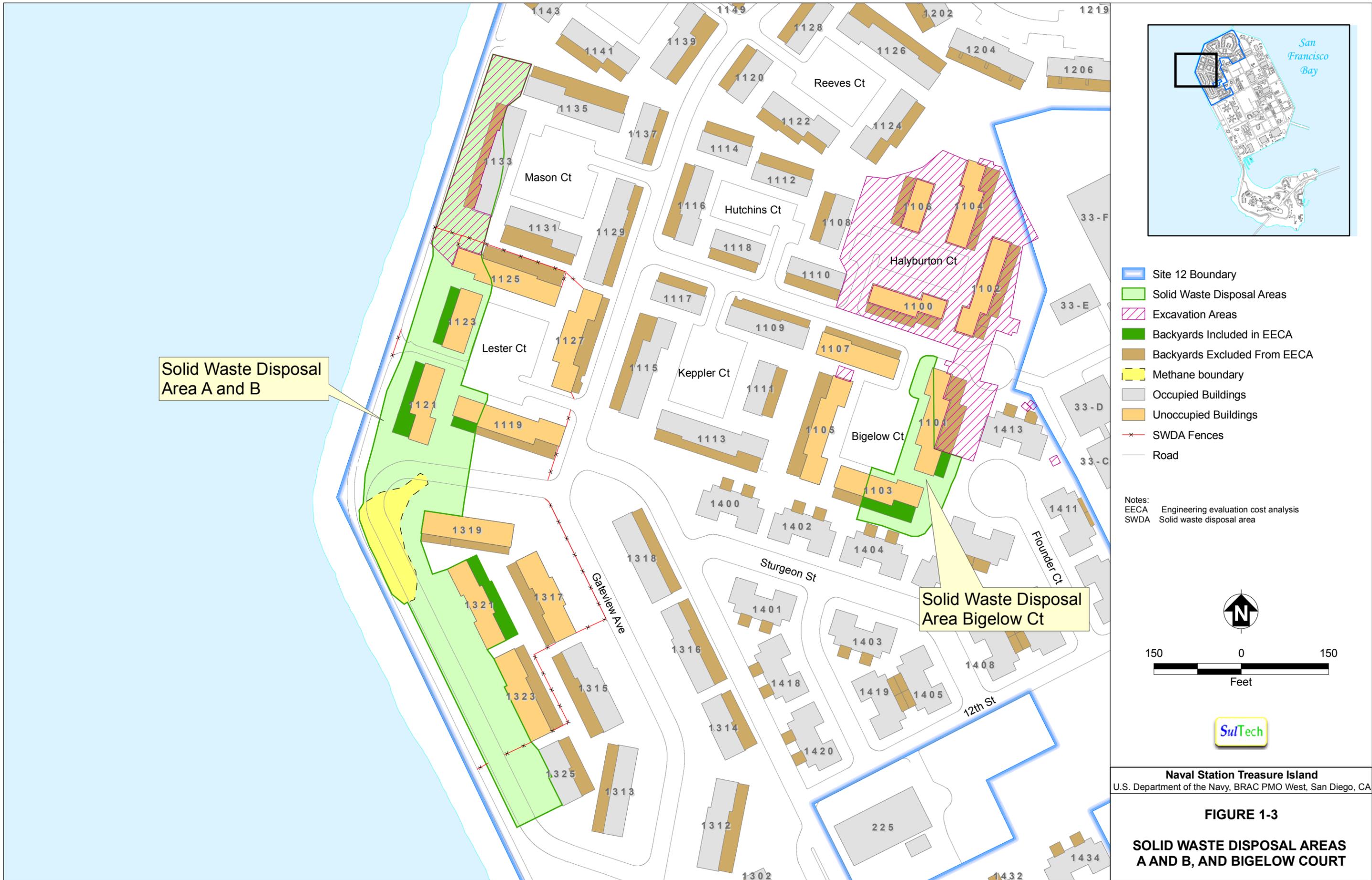
-  Site 12 Boundary
-  Solid Waste Disposal Areas
-  Backyards Included in EECA
-  Backyards Excluded From EECA
-  Unoccupied Buildings
-  Occupied Buildings
-  Excavation Areas
-  Dioxin boundary
-  Methane boundary
-  SWDA Fences
-  Road

Notes:
 EECA Engineering evaluation cost analysis
 SWDA Solid waste disposal area



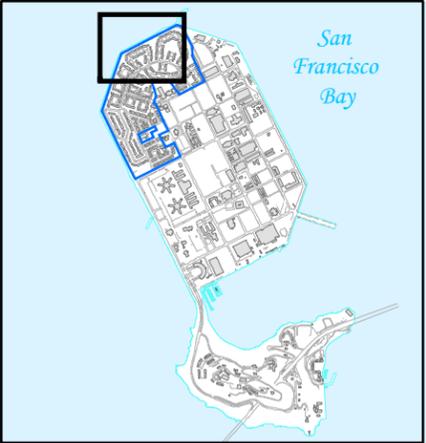
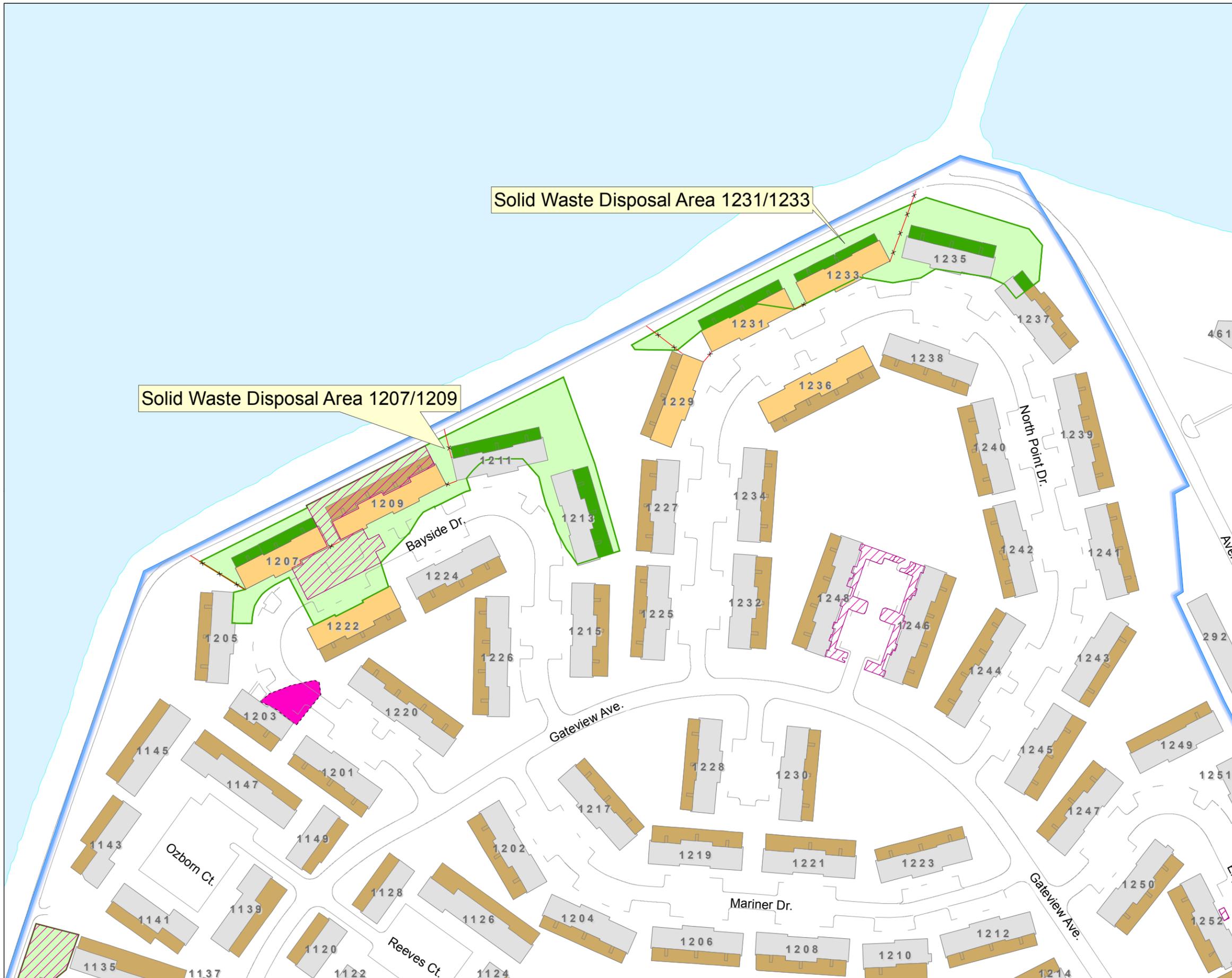
Naval Station Treasure Island
 U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE 1-2
SITE FEATURES MAP



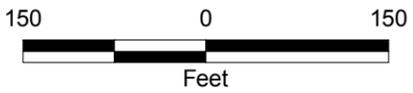
Solid Waste Disposal Area A and B

Solid Waste Disposal Area Bigelow Ct



- Site 12 Boundary
- Solid Waste Disposal Areas
- Backyards Included in EECA
- Backyards Excluded From EECA
- Excavation Areas
- Dioxin boundary
- Occupied Buildings
- Unoccupied Buildings
- SWDA Fences
- Road

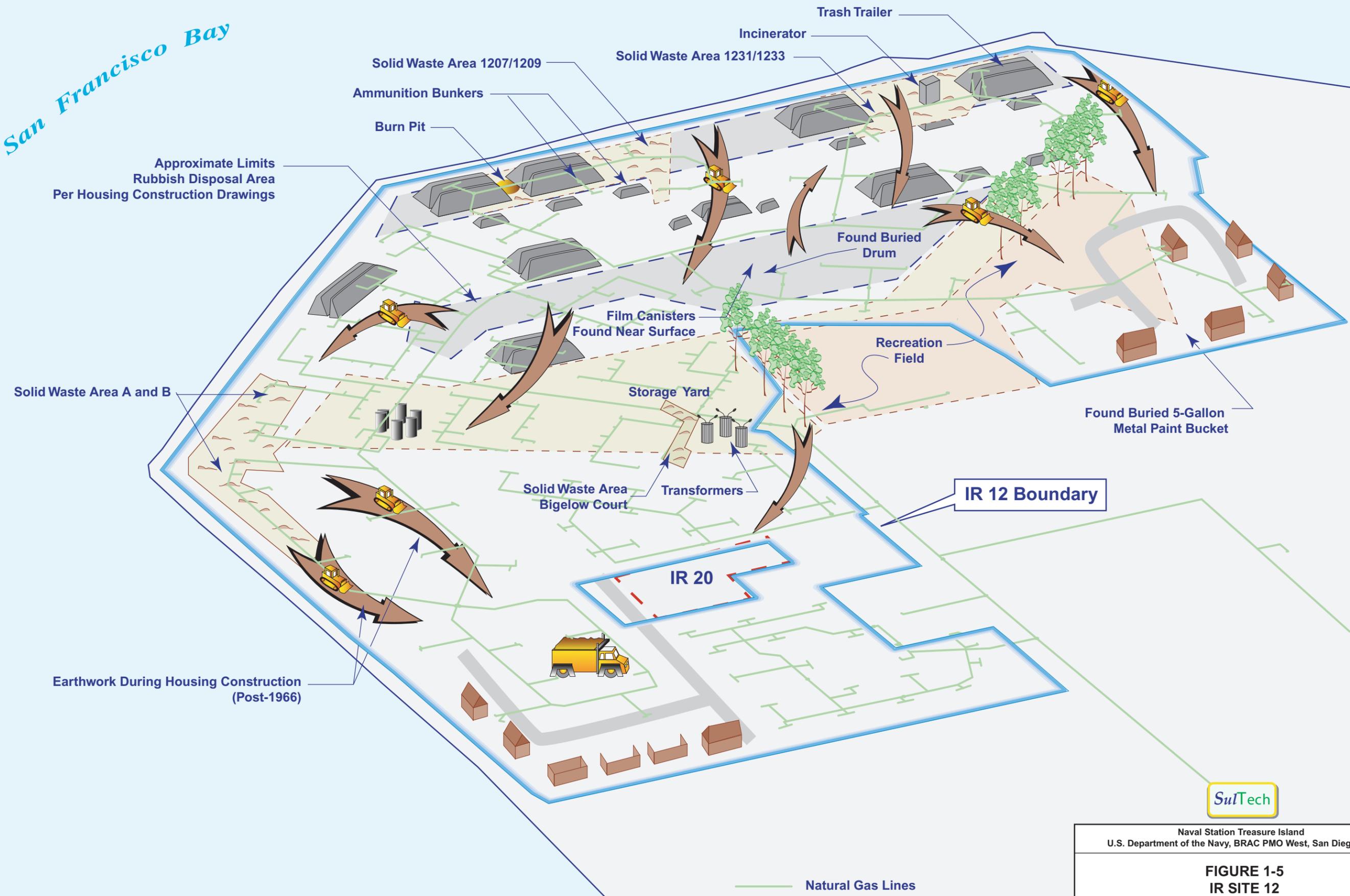
Notes:
 EECA Engineering evaluation cost analysis
 SWDA Solid waste disposal area



Naval Station Treasure Island
 U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE 1-4
SOLID WASTE DISPOSAL AREAS
1207/1209 AND 1231/1233

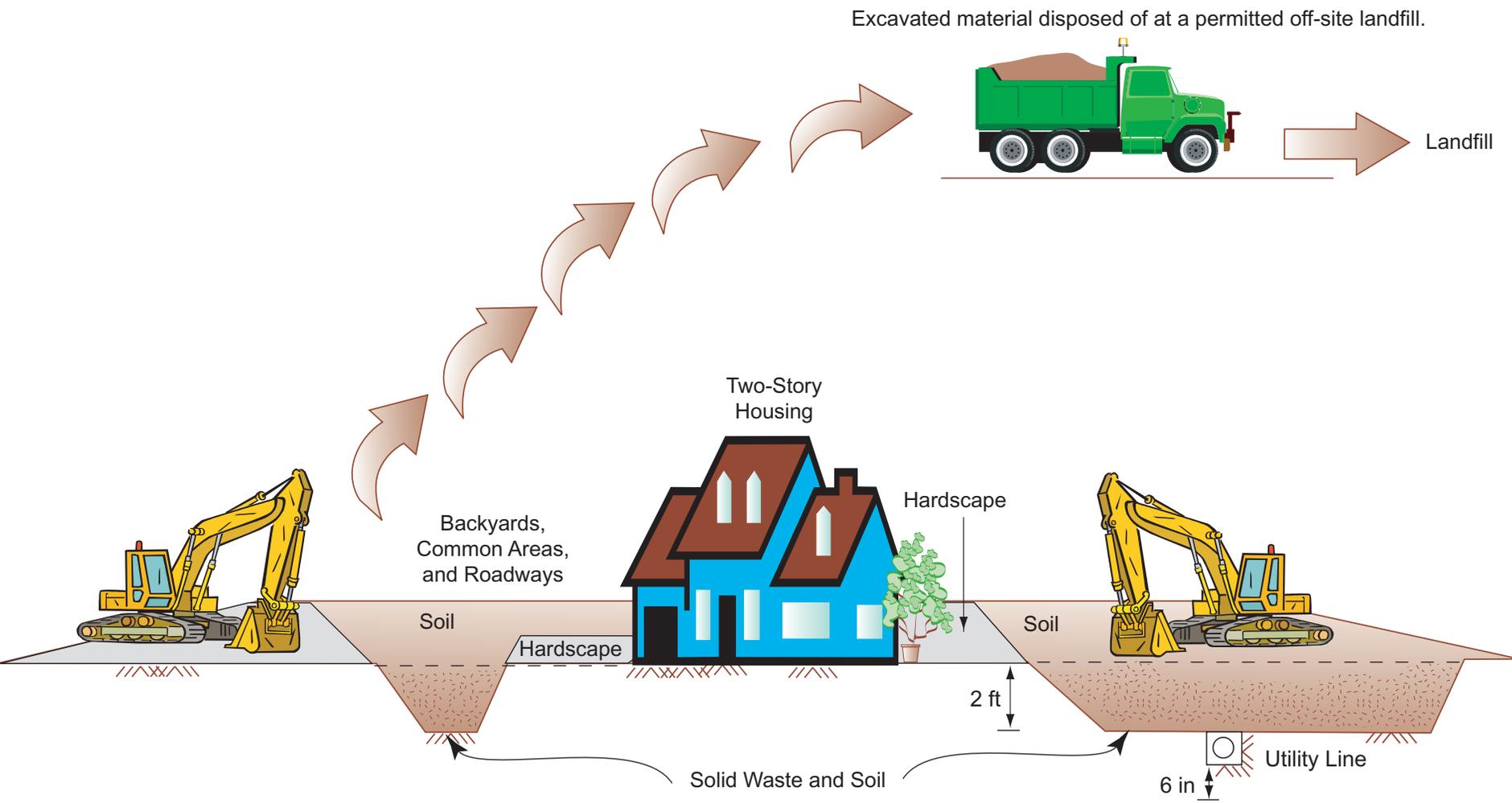
San Francisco Bay



Naval Station Treasure Island
U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE 1-5
IR SITE 12
SITE CONCEPTUAL MODEL
PRIOR TO 1966

— Natural Gas Lines

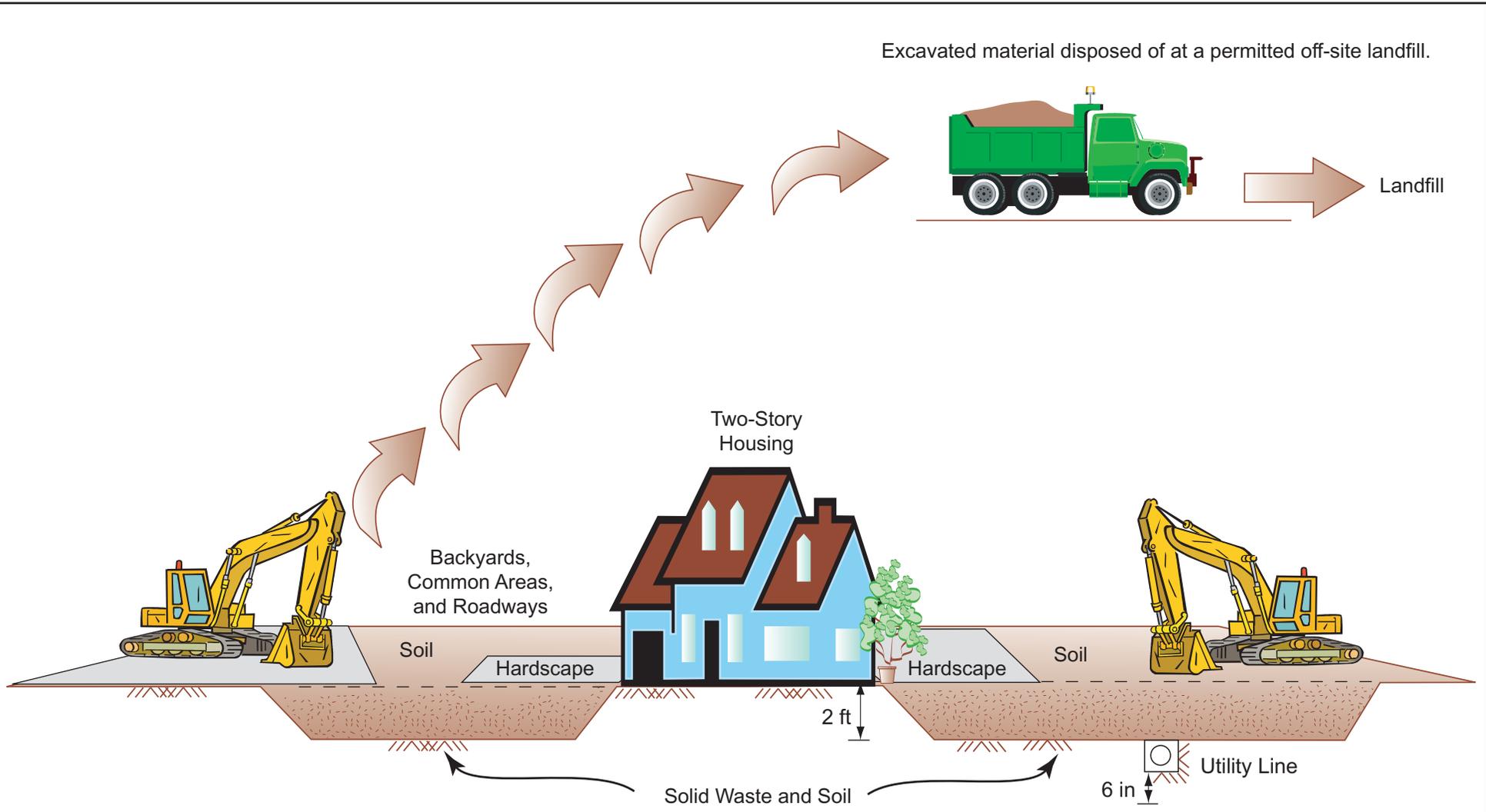


1. Soil excavation to 2 feet. In addition, soil excavation to 6 inches below the elevation of any utility, if present. Soils below hardscape will not be excavated
 2. Excavation of methane impacted area
 3. Backfill with clean soil
 4. Dispose of excavated material at an off-site landfill
- Note: Hardscape includes driveways and sidewalks.



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FIGURE 4-1
ALTERNATIVE 1
 (excluding hardscape)

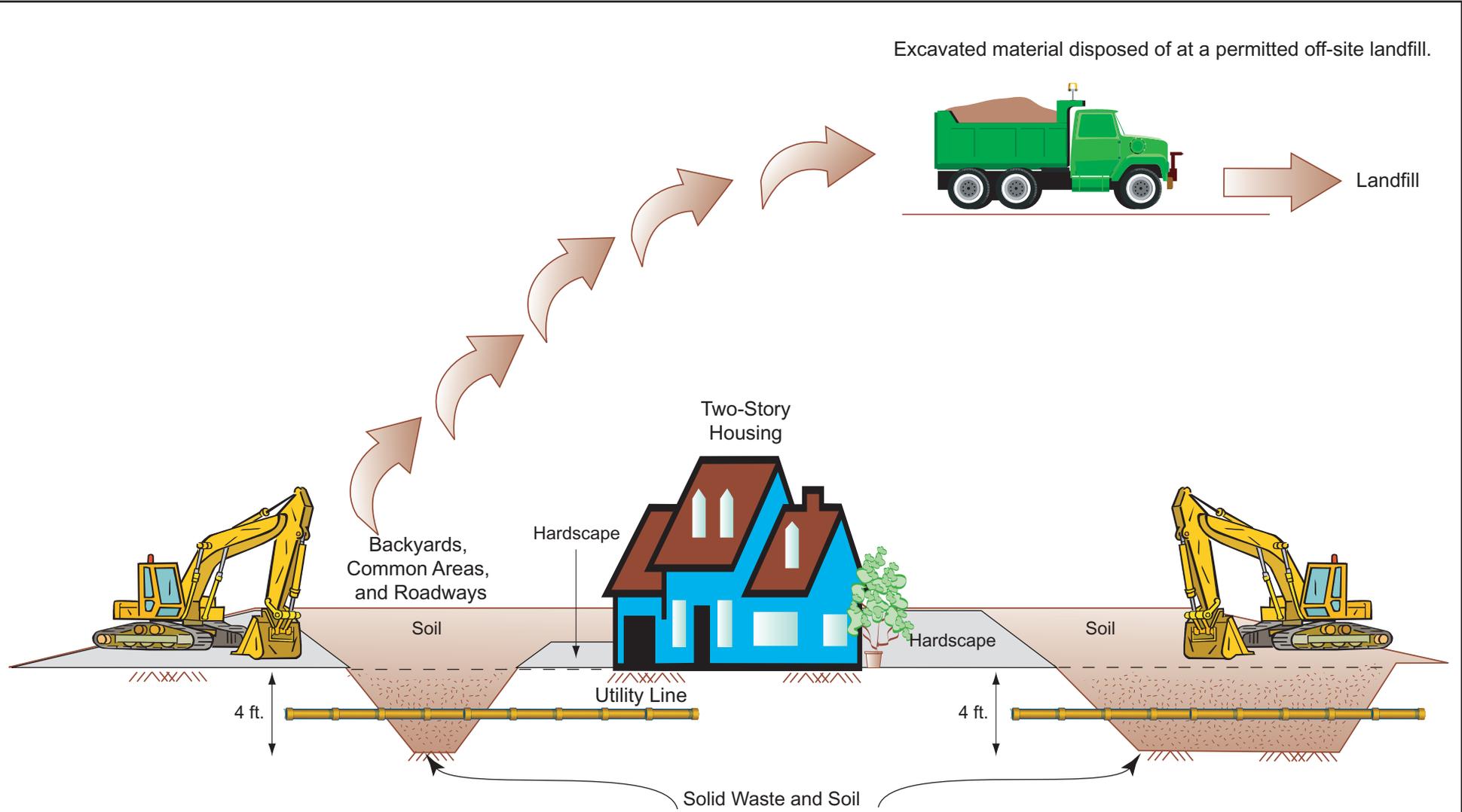


1. Soil excavation to 2 feet. In addition, soil excavation to 6 inches below the elevation of any utility, if present. Soils below hardscape will also be excavated
 2. Excavation of methane impacted areas
 3. Backfill with clean soil
 4. Dispose of excavated material at off-site landfill
- Note: Hardscape includes driveways and sidewalks



Naval Station Treasure Island
 U.S. Department of the Navy BRAC PMO West, San Diego, CA

FIGURE 4-2
ALTERNATIVE 2
 (including hardscape)

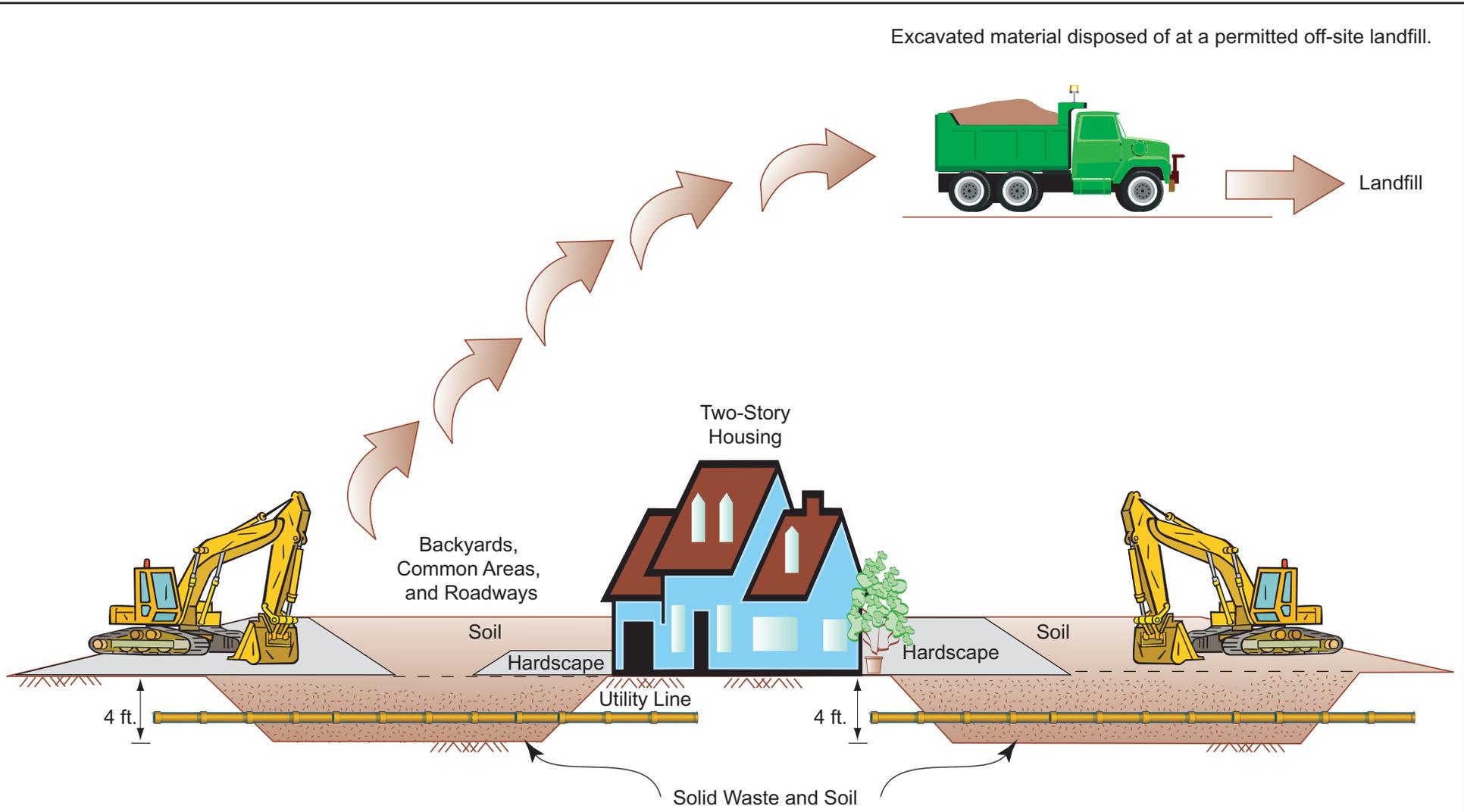


1. Excavate backyard and common areas (excluding hardscape) to 4 feet
2. Excavation of methane impacted areas
3. Backfill with clean soil
4. Dispose of excavated material at an off-site landfill

Note: Hardscape includes driveways and sidewalks

Naval Station Treasure Island
 U.S. Department of the Navy BRAC PMO West, San Diego, CA

FIGURE 4-3
ALTERNATIVE 3
 (excluding hardscape)



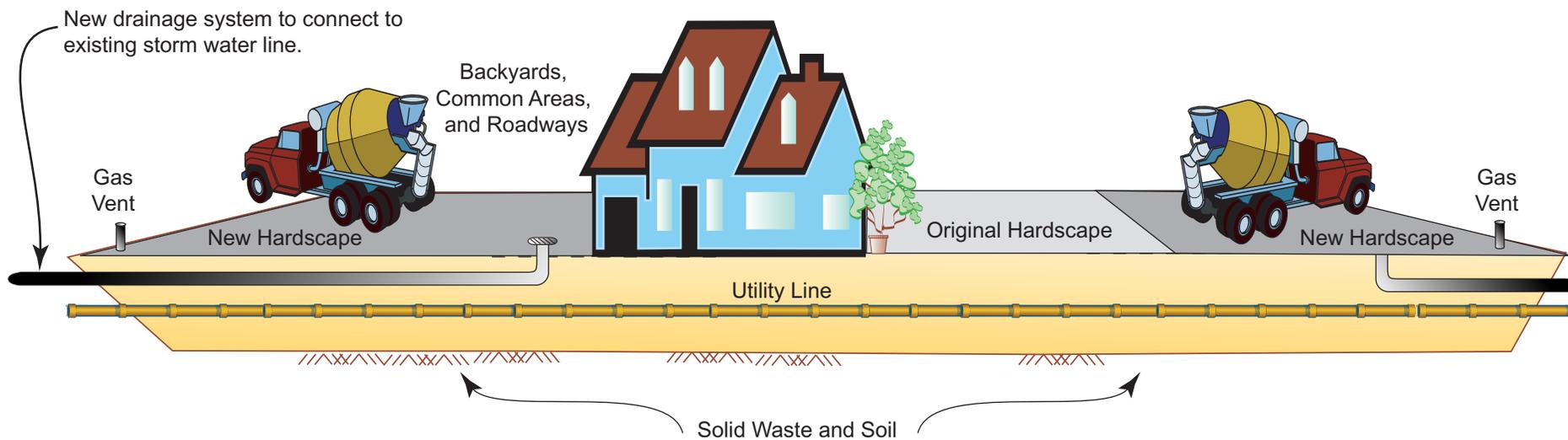
1. Excavate backyard and common areas (including hardscape) to 4 feet.
2. Excavation of methane impacted areas
3. Backfill with clean soil
4. Dispose of excavated material at an off-site landfill

Note: Hardscape includes driveways and sidewalks.



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FIGURE 4-4
ALTERNATIVE 4
(including hardscape)



1. Clear and grade surface to fill
2. Install drainage system and gas vents
3. Pave backyards and common areas with 4-inch, mesh-reinforced concrete slab on grade

Note: Hardscape includes driveways and sidewalks.



Naval Station Treasure Island
U.S. Department of the Navy BRAC PMO West, San Diego, CA

FIGURE 4-5
ALTERNATIVE 5
capping

TABLE

TABLE 5-1: COMPARATIVE ANALYSIS OF ALTERNATIVES

Revised EE/CA, Solid Disposal Area, IR Site 12, Treasure Island, California

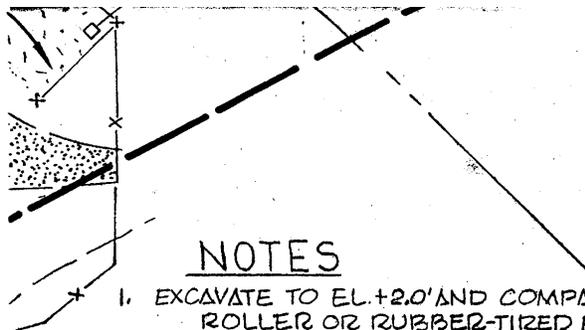
| Criteria | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 | Alternative 5 |
|---|--|---|---|---|---------------|
| | Soil excavation to 2 feet. In addition, soil excavation to 6 inches below the elevation of any utility, if present to a maximum depth of 4 feet. Soils below roads will be excavated. Soils below paved areas such as sidewalks and driveways (hardscape) will not be excavated. | Soil excavation to 2 feet. In addition, soil excavation to 6 inches below the elevation of any utility, if present. Soils below hardscape will also be excavated. | Soil excavation to 4 feet bgs excluding hardscape | Soil excavation to 4 feet bgs including hardscape | Capping |
| Overall Protection of Human Health and the Environment | 4 | 5 | 8 | 10 | 3 |
| Compliance with Applicable or Relevant and Appropriate Requirements | 10 | 10 | 10 | 10 | 10 |
| Long-Term Effectiveness and Permanence | 4 | 6 | 8 | 10 | 3 |
| Reduction of Toxicity, Mobility, or Volume through Treatment | 4 | 6 | 8 | 10 | 2 |
| Short-Term Effectiveness | 8 | 7 | 6 | 4 | 9 |
| Implementability | 9 | 8 | 6 | 4 | 10 |
| Cost | 7 | 5 | 3 | 2 | 9 |
| Overall Rating | 6.6 | 6.7 | 7.0 | 7.1 | 6.6 |

Ranking Scale

1 through 10 Meets criteria least to the best

Note:

**APPENDIX A
CONSTRUCTION SPECIFICATIONS DENOTING GRADING PRACTICES FOR
HOUSING AT INSTALLATION RESTORATION SITE 12**



RECORD DRAWING

SHEET 5 of 135

DATE 1/19/67

NOTES

1. EXCAVATE TO EL.+2.0' AND COMPACT EXPOSED SUBGRADE WITH SHEEPSFOOT ROLLER OR RUBBER-TIRED EQUIPMENT HAVING NOT LESS THAN 50 PSI. TIRE PRESSURE, 4 PASSES, COMPLETE COVERAGE EACH PASS
2. REPLACE EXCAVATED MATERIAL AND COMPACT IN LAYERS NOT EXCEEDING 8" THICKNESS WITH SHEEPSFOOT ROLLER HAVING FOOTPRINT PRESSURE NOT LESS THAN 400 PSI., 4 PASSES EACH LAYER, MIN.
3. WHERE RUBBISH IS FOUND, MIX WITH SOIL TO PREVENT LOCALIZED CONCENTRATIONS OF RUBBISH. DO NOT PLACE RUBBISH ABOVE EL.+4, NOR ABOVE 1 FT. BELOW FINISHED SUBGRADE ELEVATION.
4. AT EL.+4 COMPACT WITH 10 TON MINIMUM WEIGHT VIBRATORY ROLLER, 4 PASSES.
5. FROM ELEV. +4 TO FINISHED GRADE, COMPACT TO NOT LESS THAN 95% COMPACTION BASED ON AASHO STANDARD METHOD OF TEST T-180-57.
6. FOR PLANS OF EXISTING AMMO STORAGE FACILITIES TO BE DEMOLISHED, SEE Y&D DWG NO. 1043888
7. ALL ABOVE GROUND AND UNDERGROUND FACILITIES NOT TO BE USED IN NEW CONSTRUCTION ARE TO BE REMOVED

LEGEND

| | | |
|--------|--|--|
| ● TH-3 | SAMPLE BORING (SEE Y&D DWG NO 1043906) | |
| ● B-14 | STANDARD PENETRATION BORING (SEE Y&D DWG. NO. 1043906) | |
| ⊕ W-2 | WATER LEVEL OBSERVATION HOLE | |
| ⊠ T-3 | TRENCH EXCAVATION (SEE Y&D DWG. NO. 1043906) | |
| — X — | FENCE | |
| — W — | WATER PIPELINE | |
| — S — | CONTOUR LINE | |
| ⊙ | FIRE HYDRANT | |
| ⊙ | STREET LIGHT | |
| — SD — | STORM SEWER | |
| ⊙ | TREE | |
| | | |
| | | |
| | | |

PAVED AREA (A.G.) AND P.C.C. (A)

RUBBISH DISPOSAL AREAS, LIMITS

SOIL EXCAVATION AND RECOMPACTION, LIMITS

| | | | | | | |
|--|----------------------------|--|---|--|---------------------------|--|
| MKE - ABRAMS - KELLER & GANNON A JOINT VENTURE | | | DEPARTMENT SE NAVY 1984 DISTRICT PUBLIC WORKS OFFICE | | BUREAU OF YARDS & DOCKS | |
| DES RM - DR MK CHK RM | | | TWELFTH NAVAL DISTRICT | | SAN BRUNO, CALIFORNIA | |
| SUPV | | | U.S. NAVAL STATION, TREASURE ISLAND | | SAN FRANCISCO, CALIFORNIA | |
| SUBMITTED BY <i>[Signature]</i> DATE <i>[Date]</i> | | | 300 UNITS - APPROPRIATED FUND QUARTERS | | | |
| FIRM MEMBER (TITLE) | | | TREASURE ISLAND | | | |
| D P W O | FIRE SOIL CON. UTIL. | PL'NG. <i>SAMURRAY</i> E.I.C. <i>OBITSKY</i> DIR. <i>[Signature]</i> | EXISTING SITE CONDITION | | | |
| SATISFACTORY TO <i>[Signature]</i> | | | CODE IDENT NO. <i>00001</i> | | SIZE <i>F</i> | |
| DATE <i>[Date]</i> | | | DPWO-12 D'W'G NO. <i>B-72087</i> | | | |

REQUIREMENTS FOR TREATMENT OF FORMER RUBBISH DISPOSAL AREAS AND ASPHALTIC STABILIZED SURFACE MATERIAL (SEE NOTE G)

1. STRIP FORMER RUBBISH DISPOSAL AREAS TO ELEVATION +2 WITHIN THE LIMITS INDICATED.
2. COMPACT THE SUBGRADE OF THE STRIPPED FORMER RUBBISH DISPOSAL AREAS AT ELEVATION +2 WITH NOT LESS THAN FOUR PASSES OF A SHEEPSFOOT ROLLER WEIGHING NOT LESS THAN EIGHT TONS.
3. REMOVE ASPHALTIC STABILIZED SURFACE MATERIAL FROM THE AREAS INDICATED. SUCH MATERIAL SHALL BE BROKEN INTO PIECES NOT TO EXCEED 12".
4. THE STRIPPED FORMER RUBBISH DISPOSAL AREAS SHALL BE FILLED TO ELEVATION +4 IN COMPACTED LAYERS NOT TO EXCEED EIGHT INCHES IN THICKNESS WITH A THOROUGH MIXTURE OF MATERIAL STRIPPED FROM THE FORMER RUBBISH DISPOSAL AREAS, REMOVED ASPHALTIC STABILIZED SURFACE MATERIAL AND CLEAN SAND. EACH LAYER OF MIXED MATERIAL SHALL BE COMPACTED WITH NOT LESS THAN FOUR PASSES OF A SHEEPSFOOT ROLLER WEIGHING NOT LESS THAN EIGHT TONS. NO MATERIAL SHALL BE REPLACED WITHIN A DISTANCE OF FIFTEEN FEET OF AN AREA THAT IS SIMULTANEOUSLY BEING EXCAVATED.
5. FROM ELEVATION +4 TO FINISHED GRADE ELEVATION, PLACE CLEAN SANDY SOIL FROM REQUIRED EXCAVATION OR SUITABLE IMPORTED MATERIAL. ALL MATERIAL ABOVE ELEVATION +4 SHALL BE PLACED AND COMPACTED TO 95% MAXIMUM DENSITY AS SPECIFIED.

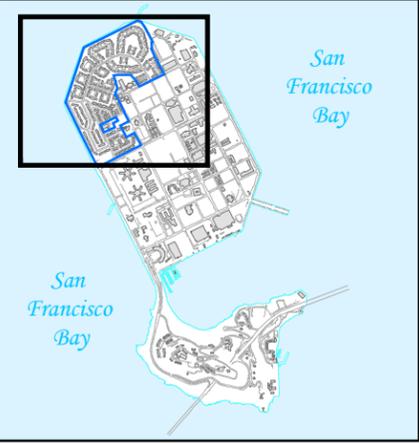
LETTER DATED 00 MAY 1972

1200-3782

DWC#82449

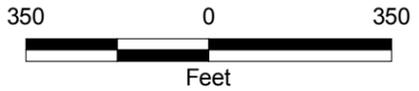
| | | | | | |
|-----------------------------|---------------------|----------|---|----------------|-------------------------------------|
| A-E CONTRACT No. Nfy 64299 | | | DEPARTMENT OF THE NAVY-NAVAL FACILITIES ENGINEERING COMMAND | | |
| MKE-ABRAMS-KELLER & GANNON | | | WESTERN DIVISION SAN DIEGO, CALIFORNIA | | |
| DES L.L. | DR G.N. | CHK L.L. | U.S. NAVAL STATION, TREASURE ISLAND SAN FRANCISCO, CALIFORNIA | | |
| SUPV <i>R.A.S.</i> | AS ENGR <i>R.S.</i> | DATE | 340 UNITS-APPROPRIATED FUND QUARTERS | | |
| DRAWN BY <i>[Signature]</i> | | | SOIL BORING LOGS | | |
| PERS. ADDRESS (TITLE) | | | SIZE | CODE IDENT NO. | NAVFAC DRWG. NO. 1064646 |
| 1. PWR <i>G.E.E.L.</i> | 2. MTR. | | F | 80091 | SPD DRWG. NO. B-78646 |
| 3. SOIL CON. | 4. ELEC. H.H. JAMES | | | | CONSTR. CONTR. NO. N 4347468-c 0143 |
| 5. ETL. | 6. ELEC. CALZEA | | SCALE | NONE | SPC. 64300/65 SHEET 42 |
| APPROVED | | | | | |
| DATE 3/6/68 | | | | | |
| FOR COMMANDER, NAVFAC | | | | | |

APPENDIX B
FIGURES SHOWING NATURE AND EXTENT OF CONTAMINATION THROUGHOUT
INSTALLATION RESTORATION SITE 12



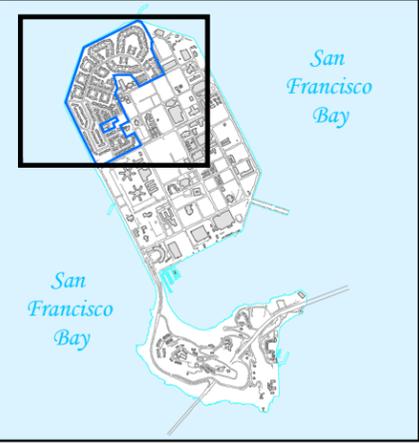
- Site 12 Boundary
- Lead in Soil ≥ 400 mg/kg**
- Hydropunch
- ▲ Test Pit
- Other
- Lead in Soil < 400 mg/kg**
- Hydropunch
- ▲ Test Pit
- Other
- Solid Waste Disposal Areas
- Excavation Areas
- Dioxin boundary
- Methane boundary
- Buildings
- Backyards
- Road

Note:
mg/kg Milligrams per kilogram



Naval Station Treasure Island
U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE B-1
METAL SAMPLING LOCATIONS
0-2 FEET BELOW GROUND SURFACE
AT SITE 12



- Site 12 Boundary
- Lead in Soil \geq 400 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- Lead in Soil $<$ 400 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- Solid Waste Disposal Areas
- Excavation Areas
- Dioxin boundary
- Methane boundary
- Buildings
- Backyards
- Road

Note:
mg/kg Milligrams per kilogram

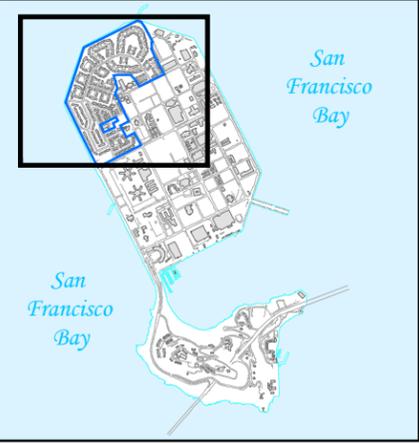
350 0 350
Feet



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FIGURE B-2
METAL SAMPLING LOCATIONS
2-4 FEET BELOW GROUND SURFACE
AT SITE 12





- Site 12 Boundary
- PCBs* in Soil ≥ 1 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- PCBs* in Soil < 1 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- Solid Waste Disposal Areas
- Excavation Areas
- Dioxin boundary
- Methane boundary
- Buildings
- Backyards
- Road

Notes:
 *Total aroclors

mg/kg Milligrams per kilogram
 PCB Polychlorinated biphenyl

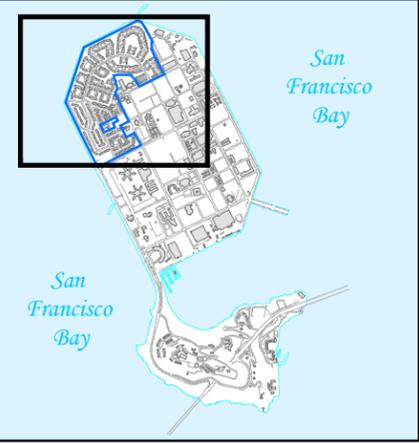
350 0 350
 Feet



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 U.S. Department of the Navy, BRAC PMO West, San Diego, CA

**FIGURE B-3
 TOTAL PCB SAMPLING LOCATIONS
 0-2 FEET BELOW GROUND SURFACE
 AT SITE 12**





San Francisco Bay

Solid Waste Disposal Area 1231/1233

Solid Waste Disposal Area 1207/1209

Solid Waste Disposal Area A & B

Solid Waste Disposal Area Bigelow Court

Site 12 Boundary

PCBs* in Soil ≥ 1 mg/kg

- Hydropunch
- Test Pit
- Other

PCBs in Soil < 1 mg/kg

- Hydropunch
- Test Pit
- Other

Solid Waste Disposal Areas

- Excavation Areas
- Dioxin boundary
- Methane boundary

Buildings

Backyards

Road

Note:
*Total aroclors

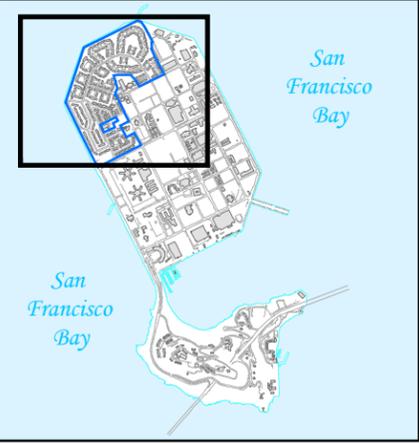
mg/kg Milligrams per kilogram
PCB Polychlorinated biphenyl

350 0 350
Feet



Naval Station Treasure Island
U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE B-4
TOTAL PCB SAMPLING LOCATIONS
2-4 FEET BELOW GROUND SURFACE
AT SITE 12



San Francisco Bay

Solid Waste Disposal Area 1231/1233

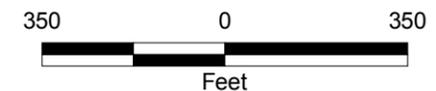
Solid Waste Disposal Area 1207/1209

Solid Waste Disposal Area A & B

Solid Waste Disposal Area Bigelow Court

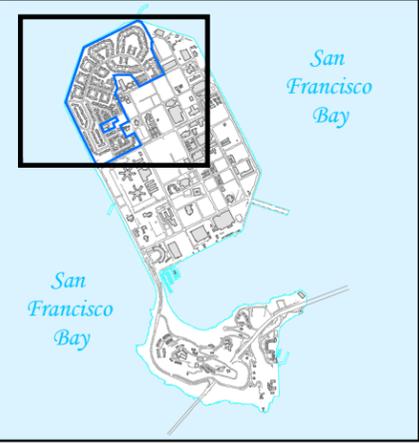
- Site 12 Boundary
- PAHs in Soil ≥ 0.62 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- PAHs in Soil < 0.62 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- Solid Waste Disposal Areas
- Excavation Areas
- Dioxin boundary
- Methane boundary
- Buildings
- Backyards
- Road

Notes:
 BAP Benzo(a)pyrene
 mg/kg Milligrams per kilogram
 PAH Polycyclic aromatic carbons



Naval Station Treasure Island
 U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE B-5
TOTAL PAH SAMPLING LOCATIONS
(BAP EQUIVALENT)
0-2 FEET BELOW GROUND SURFACE
AT SITE 12



- Site 12 Boundary
- PAHs in Soil ≥ 0.62 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- PAHs in Soil < 0.62 mg/kg**
 - Hydropunch
 - Test Pit
 - Other
- Solid Waste Disposal Areas
- Excavation Areas
- Dioxin boundary
- Methane boundary
- Buildings
- Backyards
- Roads

Notes:
 BAP Benzo(a)pyrene
 mg/kg Milligrams per kilogram
 PAH Polycyclic aromatic carbons

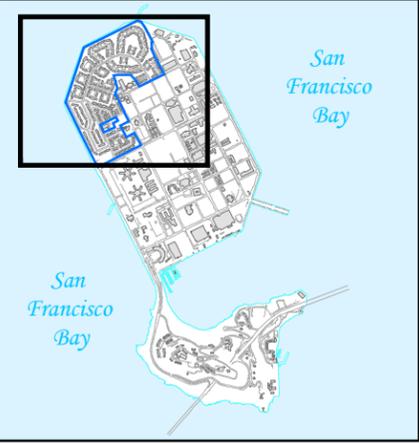
350 0 350
 Feet



Naval Station Treasure Island
 U.S. Department of the Navy, BRAC PMO West, San Diego, CA

FIGURE B-6
TOTAL PAH SAMPLING LOCATIONS
(BAP EQUIVALENT)
2-4 FEET BELOW GROUND SURFACE
AT SITE 12





San Francisco Bay

Solid Waste Disposal Area 1231/1233

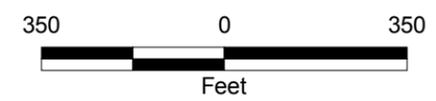
Solid Waste Disposal Area 1207/1209

Solid Waste Disposal Area A & B

Solid Waste Disposal Area Bigelow Court

- Site 12 Boundary
- Dioxin in Soil ≥ 12 ng/kg**
 - Hydropunch
 - Surface Sample
 - Monitoring Well
- Dioxin in Soil < 12 ng/kg**
 - Hydropunch
 - Surface Sample
 - Monitoring Well
- Solid Waste Disposal Areas
- Excavation Areas
- Dioxin boundary
- Methane boundary
- Buildings
- Backyards
- Road

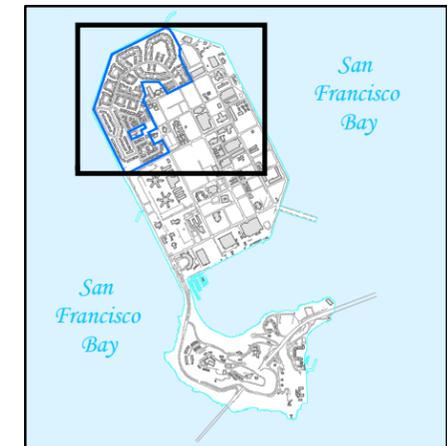
Note: ng/kg Nanograms per kilogram



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**FIGURE B-7
DIOXIN SAMPLING LOCATIONS
0-2 FEET BELOW GROUND SURFACE
AT SITE 12**

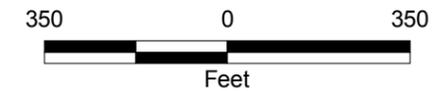
APPENDIX C
HISTORICAL AERIAL PHOTOGRAPHS



Legend

- Solid Waste Disposal Area Boundary
- Site 12 Boundary

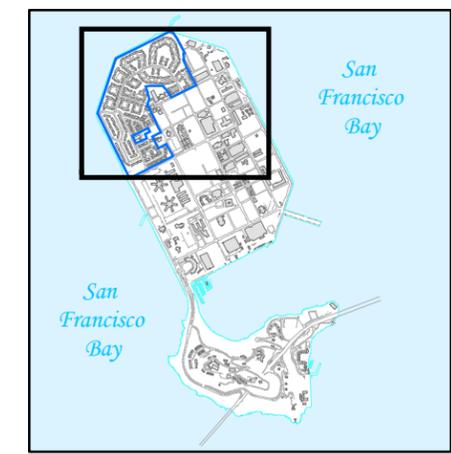
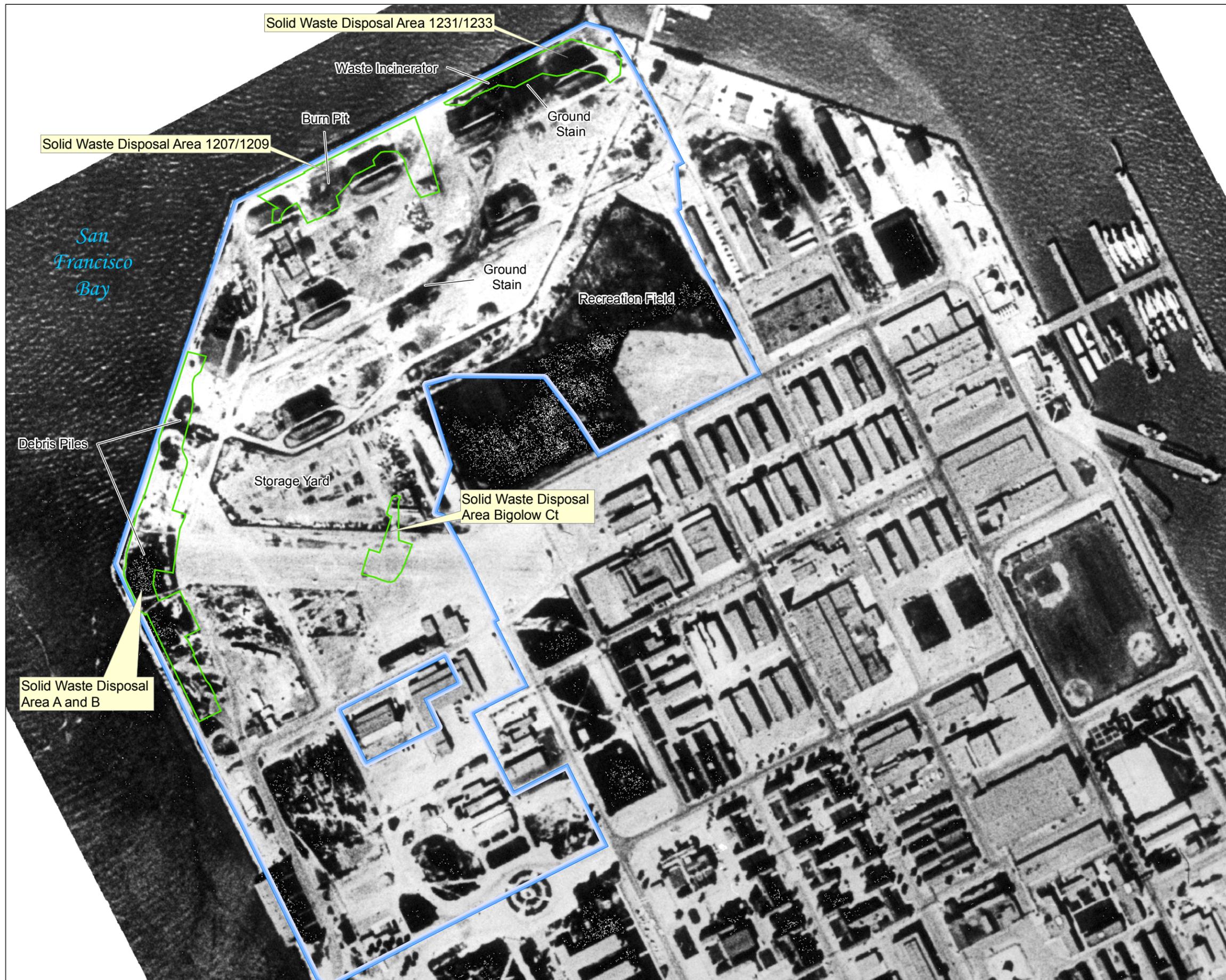
Reference: U.S. Navy. 1945. Aerial Photograph of Naval Station Treasure Island; San Francisco Bay, California. February 20.



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FIGURE C-1

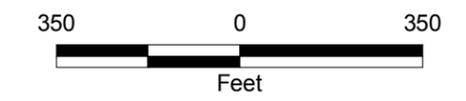
**1945 AERIAL PHOTOGRAPH OF
SITE 12, NAVSTA, TI**



Legend

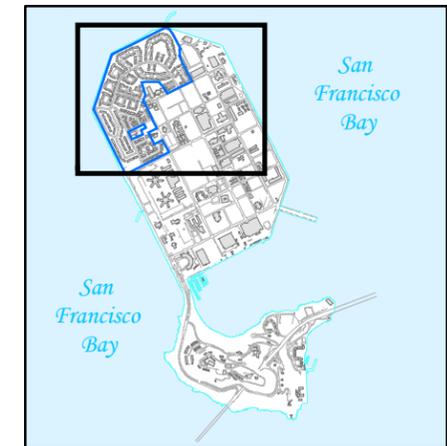
- Solid Waste Disposal Area Boundary
- Site 12 Boundary

Reference: Pacific Aerial Surveys. 1958. Aerial Photograph of Naval Station Treasure Island; San Francisco Bay, California. Oakland, California. March 1. PIC 95707, Frame No. 156.



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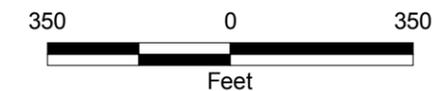
FIGURE C-2
1958 AERIAL PHOTOGRAPH OF
SITE 12, NAVSTA, TI



Legend

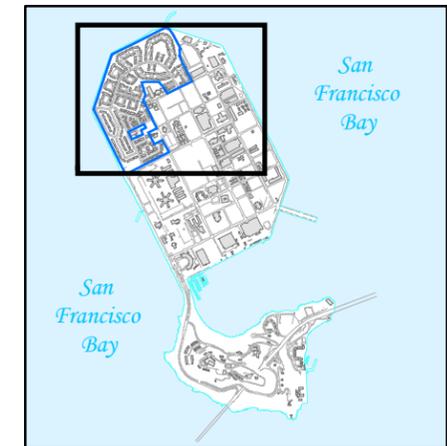
- Solid Waste Disposal Area Boundary
- Site 12 Boundary

Reference: Pacific Aerial Surveys. 1968. Aerial Photograph of Naval Station Treasure Island; San Francisco Bay, California. Oakland, California. April 10. Photo No. AV-844-11-29.



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FIGURE C-3
1968 AERIAL PHOTOGRAPH OF
SITE 12, NAVSTA, TI



Legend

- Solid Waste Disposal Area Boundary
- Site 12 Boundary

Reference: Pacific Aerials Surveys. 2000. Aerial Photograph of Naval Station Treasure Island; San Francisco Bay, California. Oakland, California. August 15. Photo No. SF AV 6600 8 2.



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FIGURE C-4
2000 AERIAL PHOTOGRAPH OF
SITE 12, NAVSTA, TI

APPENDIX D
PHOTOGRAPHS OF DEBRIS FROM TEST PITS



Photo No. 1

Burnt debris, bottles, and spoons taken from test pits around Building 1321
(Solid Waste Disposal Area A and B)



Photo No. 2

Film, a serum bottle, and paint clump taken from test pits around
Buildings 1213 and 1323
(Solid Waste Disposal Areas 1213, and A and B, respectively)



Rusted Metal Objects

Photo No. 3

Rusted metal objects taken from test pits around Building 1323
(Solid Waste Disposal Area A and B)



Photo No. 4

Typical test pit (Building 1254)



Photo No. 5
Typical test pit (Building 1105)



Photo No. 6
Typical test pit (Building 1412)

APPENDIX E
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

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ACRONYMS AND ABBREVIATIONS

| | |
|-----------------|---|
| § | Section |
| §§ | Sections |
| µg/L | Microgram per liter |
| ARAR | Applicable or relevant and appropriate requirement |
| BAAQMD | Bay Area Air Quality Management District |
| Bay Plan | San Francisco Bay Plan |
| BCDC | San Francisco Bay Conservation and Development Commission |
| bgs | Below ground surface |
| Cal. Code Regs. | <i>California Code of Regulations</i> |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFR | <i>Code of Federal Regulations</i> |
| CZMA | Coastal Zone Management Act |
| DTSC | California Environmental Protection Agency Department of Toxic Substances Control |
| DWQ | Division of Water Quality |
| EE/CA | Engineering Evaluation/Cost Assessment |
| EP | Extraction procedure |
| EPA | U.S. Environmental Protection Agency |
| et seq. | And as follows |
| FR | Federal Register |
| IC | Institutional control |
| mg/L | Milligram per liter |
| Navy | U.S. Department of the Navy |
| NCP | National Oil and Hazardous Substances Pollution Contingency Plan |
| PCB | Polychlorinated biphenyl |
| ppm | part per million |
| PRG | Preliminary remediation goal |
| RCRA | Resource Conservation and Recovery Act |
| SWDA | Solid waste disposal area |
| TBC | To be considered |
| TCLP | Toxicity characteristic leaching procedure |
| TI | Treasure Island |
| tit. | Title |
| USC | <i>United States Code</i> |

E1.0 EVALUATION OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

This appendix identifies and evaluates potential federal and state of California applicable or relevant and appropriate requirements (ARAR) from the universe of regulations, requirements, and guidance and sets forth the U.S. Department of the Navy (Navy) determinations regarding those potential ARARs for remedial alternatives evaluated in the Engineering Evaluation/Cost Assessment (EE/CA) for four Solid Waste Disposal Areas (SWDA) at Site 12 at former Naval Station Treasure Island, San Francisco, California.

This evaluation includes an initial determination of whether the potential ARARs actually qualify as ARARs and a comparison for stringency between the federal and state regulations to identify the controlling potential ARARs. The identification of potential ARARs is an iterative process. The final determination of ARARs will be made by the Navy in the Action Memorandum, after public review, as part of the response action selection process.

E1.1 SUMMARY OF COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT AND NATIONAL OIL AND HAZARDOUS SUBSTANCES POLLUTION CONTINGENCY PLAN REQUIREMENTS

Section 121(d) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 *United States Code* (USC) Section (§) 9621[d]), as amended, states that remedial actions at CERCLA sites must attain (or the decision document must justify the waiver of) any federal or more stringent state environmental standards, requirements, criteria, or limitations determined to be legally applicable or relevant and appropriate. Although Section 121 of CERCLA does not itself expressly require that CERCLA removal actions comply with ARARs, the United States Environmental Protection Agency (U.S. EPA) has promulgated a requirement in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) mandating that CERCLA removal actions “. . . shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws” (Title 40 Code of Federal Regulations [CFR] § 300.415[j]) (40 CFR § 300.415[j]). It is Navy policy to follow this requirement. Certain specified waivers may be used for removal actions, as is the case with remedial actions ([EPA 1991](#)).

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address the situation at a CERCLA site. The requirement is applicable if the jurisdictional prerequisites of the standard show a direct correspondence when objectively compared with the conditions at the site. An applicable federal requirement is an ARAR. An applicable state requirement is an ARAR only if it is more stringent than federal ARARs.

If the requirement is not legally applicable, then it is evaluated to determine whether it is relevant and appropriate. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable, address problems or situations

similar to the circumstances of the proposed remedial action and are well suited to the conditions of the site (EPA 1988a). A requirement must be determined to be both relevant and appropriate in order to be considered a potential ARAR.

The criteria for determining relevance and appropriateness are listed in 40 CFR § 300.400(g)(2) and include the following:

- The purpose of the requirement and the purpose of the CERCLA action
- The medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site
- The substances regulated by the requirement and the substances found at the CERCLA site
- The action or activities regulated by the requirement and the response action contemplated at the CERCLA site
- Any variances, waivers, or exemptions of the requirement and their availability for the circumstances at the CERCLA site
- The type of place regulated and the type of place affected by the release or CERCLA action
- The type and size of structure or facility regulated and the type and size of structure or facility affected by the release or contemplated by the CERCLA action
- Any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resources at the CERCLA site

According to CERCLA ARARs guidance (EPA 1988a), a requirement may be “applicable” or “relevant and appropriate,” but not both. ARARs must be identified on a site-specific basis and involve a two-part analysis. First, a determination is made about whether a given requirement is applicable. Second, if the requirement is not applicable, a determination is made about whether it is nevertheless both relevant and appropriate. It is important to explain that some regulations may be applicable or, if not applicable, may still be relevant and appropriate. When the analysis determines that a requirement is both relevant and appropriate, such a requirement must be complied with to the same degree as if it were applicable (EPA 1988a).

Tables E-1 through E-3 present each potential ARAR with a determination of ARAR status (that is, applicable, relevant and appropriate, or to be considered [TBC]). For the determination of relevance and appropriateness, the pertinent criteria were examined to determine whether the requirements addressed problems or situations sufficiently similar to the circumstances of the release or remedial action contemplated, and whether the requirement was well suited to the site.

To qualify as a state potential ARAR under CERCLA and the NCP, a state requirement must be:

- A state law or regulation
- An environmental or facility siting law
- Promulgated (of general applicability and legally enforceable)
- Substantive (not procedural or administrative)
- More stringent than the federal requirement
- Identified in a timely manner
- Consistently applied

To constitute a potential ARAR, a requirement must be substantive. Only the substantive provisions of requirements identified as potential ARARs in the Site 12 EE/CA are considered to be potential ARARs. Permits are considered to be procedural or administrative requirements. Provisions of generally relevant federal and state statutes and regulations that were determined to be procedural or nonenvironmental, including permit requirements, are not considered to be potential ARARs. CERCLA 121(e)(1), 42 USC § 9621(e)(1), states that “No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely on-site, where such remedial action is selected and carried out in compliance with this section.” The term *on-site* is defined for purposes of this ARARs discussion as “the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action” (40 CFR § 300.5).

Nonpromulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the status of ARARs. Such requirements may, however, be useful and are TBC. TBC (40 CFR § 300.400[g][3]) requirements complement ARARs but do not override them. They are useful for guiding decisions regarding remediation goals or methodologies when regulatory standards are not available.

Pursuant to EPA guidance ([EPA 1988a](#)), potential ARARs are generally divided into three categories: chemical-specific, location-specific, and action-specific requirements. This classification was developed to aid in the identification of potential ARARs; some ARARs do not fall precisely into one group or another. Potential ARARs are identified for each site for remedial actions where CERCLA authority is the basis for cleanup.

As the lead federal agency, the Navy has primary responsibility for identifying potential federal ARARs for Treasure Island. The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) is responsible for identifying and advising the Navy of potential state ARARs relating to Site 12.

E1.2 METHODOLOGY DESCRIPTION

The process of identifying and evaluating potential federal and state ARARs is described in this section.

E1.2.1 General

As the lead federal agency, the Navy has primary responsibility for identification of potential ARARs for the four SWDAs at Site 12. In preparing this ARARs analysis, the Navy undertook the following measures, consistent with CERCLA and the NCP:

- Identified federal ARARs for each alternative addressed in the Site 12 EE/CA, taking into account site-specific information for Site 12
- Reviewed potential state ARARs identified by the state to determine whether they satisfy CERCLA and NCP criteria that must be met in order to constitute state ARARs
- Evaluated and compared federal ARARs and their state counterparts to determine whether state ARARs are more stringent than federal ARARs or are in addition to the federally required actions
- Reached a conclusion about the federal and state ARARs that are the most stringent or “controlling” for each remedial alternative

As discussed in [Section 3.5](#) of the EE/CA, based on CERCLA and NCP requirements the removal action objective for Site 12 is as follows:

- Reduce the potential for human contact with chemical- contaminated soil near the ground surface within the four SWDAs at Site 12 under the current land and utility configuration.

The EE/CA evaluated the following alternatives:

- Alternative 1: Soil excavation to 2 feet below ground surface (bgs). In addition, soil excavation to 6 inches below the elevation of any utility, if present. Soils below hardscape such as, sidewalks and driveways will not be excavated. Soils beneath roadways will be excavated.
- Alternative 2: Soil excavation to 2 feet bgs. In addition, soil excavation to 6 inches below the elevation of any utility, if present up to a maximum of 4 feet bgs. Soils below hardscape and unpaved areas including roadways will be excavated.
- Alternative 3: Soil excavation to 4 feet bgs. Soils below hardscape such as sidewalks and driveways will not be excavated. Soils beneath roadways will be excavated.

- Alternative 4: Soil excavation to 4 feet bgs. Soils below hardscape and unpaved areas including roadways will be excavated.
- Alternative 5: Capping.

E1.2.2 Identifying and Evaluating Federal ARARs

The Navy is responsible for identifying federal ARARs as the lead federal agency under CERCLA and the NCP. The final determination of federal ARARs will be made when the Navy issues the Record of Decision. The federal government implements a number of federal environmental statutes that are the source of potential federal ARARs, either in the form of the statutes or regulations promulgated thereunder. Examples include the Resource Conservation and Recovery Act (RCRA), the Clean Water Act, the Safe Drinking Water Act, the Toxic Substances Control Act, and their implementing regulations. See the preamble to NCP at 55 *Federal Register* (FR) Sections (§§) 8764–8765 (1990) for a more complete listing.

The proposed remedial alternatives were reviewed against all potential federal ARARs including, but not limited to, those set forth at 55 §§ FR 8764–8765 (1990), to determine if they were applicable or relevant and appropriate CERCLA and NCP criteria and procedures for ARARs identification by lead federal agencies.

E1.2.3 Identifying and Evaluating State ARARs

This subsection describes the process of identifying and evaluating potential state ARARs by the state and the Navy.

EPA guidance recommends that the lead federal agency consult with the state when identifying state ARARs for remedial actions ([EPA 1988b](#)). In essence, the CERCLA and NCP requirements at 40 CFR § 300.515 for remedial actions provide that the lead federal agency request that the state identify chemical- and location-specific state ARARs upon completion of site characterization. The requirements also provide that the lead federal agency request identification of all categories of state ARARs (chemical-, location-, and action-specific) upon identification of the remedial alternatives. The state must respond within 30 days of receipt of the lead federal agency requests. The Navy will follow the procedures set forth in 40 CFR § 300.515 for remedial actions in seeking state assistance in identifying state ARARs. The State ARARs will be identified during the Remedial Investigation/Feasibility Study process for the entire site. The Navy has included state ARARs that are known to be typically submitted by the state.

E1.3 OTHER GENERAL ISSUES

General issues identified during the evaluation of ARARs for Site 12 are discussed in the following sections.

E1.3.1 General Approach to Requirements of RCRA

RCRA is a federal statute enacted in 1976 to meet four goals: (1) the protection of human health and the environment, (2) the reduction of waste, (3) the conservation of energy and natural resources, and (4) wherever feasible, the reduction or elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. RCRA, as amended, contains several provisions that are potential ARARs for CERCLA sites.

Substantive RCRA requirements are applicable to remedial actions on CERCLA sites if the waste is a RCRA hazardous waste, and either:

- The waste was initially treated, stored, or disposed of after the effective date of the RCRA requirement; or
- The activity at the CERCLA site constitutes treatment, storage, or disposal, as defined by RCRA ([EPA 1988a](#)).

The preamble to the NCP indicates that state regulations that are components of a federally authorized or delegated state program are generally considered federal requirements and potential federal ARARs for the purposes of ARARs analysis (55 FR §§ 8666, 8742 [1990]). California received approval for its base RCRA hazardous waste management program on July 23, 1992 (57 FR § 32726 [1992]). The California “Environmental Health Standards for the Management of Hazardous Waste,” set forth in Title 22 *California Code of Regulations* (Cal. Code Regs., tit. 22), Division 4.5, were approved by EPA as a component of the federally authorized California RCRA program. On September 26, 2001, California received final authorization of its revised State Hazardous Waste Management Program by the EPA (63 FR § 49118 [2001]). Therefore, Cal. Code Regs., tit. 22, Division 4.5 is a source of potential federal ARARs for CERCLA response actions. The exception is when a state regulation is “broader in scope” than the corresponding federal RCRA regulations. In that case, such regulations are not considered part of the federally authorized program or potential federal ARARs. Instead, they are purely state law requirements and potential state ARARs.

The EPA July 23, 1992, notice approving the State of California RCRA program (57 FR § 32726 [1992]) specifically indicated that state regulations addressed certain non-RCRA, state-regulated hazardous wastes that fell outside the scope of federal RCRA requirements. Cal. Code Regs., tit. 22, Division 4.5 requirements would be potential state ARARs for such non-RCRA, state-regulated wastes.

A key threshold question for the ARARs analysis is whether contaminants at the four SWDAs at Site 12 constitute federal hazardous waste as defined under RCRA and the state’s authorized program or qualify as non-RCRA, state-regulated hazardous waste. Waste characterization is discussed in [Section E1.4](#).

E1.4 WASTE CHARACTERIZATION

This section summarizes the characterization of wastes during selection of ARARs.

E1.4.1 RCRA Hazardous Waste Determination

Federal RCRA hazardous waste determination is necessary to determine whether a waste is subject to RCRA requirements at Cal. Code Regs., tit. 22, Division 4.5 and other state requirements at Cal. Code Regs., tit. 22, Division 3, Chapter 15. The first step in the RCRA hazardous waste characterization process is to evaluate contaminated media at the sites and determine whether the contaminant constitutes a “listed” RCRA waste. The preamble to the NCP states that “... it is often necessary to know the origin of the waste to determine whether it is a listed waste and that, if such documentation is lacking, the lead agency may assume it is not a listed waste” (55 FR §§ 8666, 8758 [1990]).

This approach is confirmed in EPA guidance for CERCLA compliance with other laws ([EPA 1988a](#)), as follows:

“To determine whether a waste is a listed waste under RCRA, it is often necessary to know the source. However, at many Superfund sites, no information exists on the source of wastes. The lead agency should use available site information, manifests, storage records, and vouchers in an effort to ascertain the nature of these contaminants. When this documentation is not available, the lead agency may assume that the wastes are not listed RCRA hazardous wastes, unless further analysis or information becomes available that allows the lead agency to determine that the wastes are listed RCRA hazardous wastes.”

RCRA hazardous wastes that have been assigned EPA hazardous waste numbers (or codes) are listed in Cal. Code Regs., tit. 22, §§ 66261.30 through 66261.33. The lists include hazardous waste codes beginning with the letters “F,” “K,” “P,” and “U.”

The second step in the RCRA hazardous waste characterization process is to evaluate potential hazardous characteristics of the waste. The evaluation of characteristic waste is described in EPA guidance ([EPA 1988a](#)), as follows:

“Under certain circumstances, although no historical information exists about the waste, it may be possible to identify the waste as RCRA characteristic waste. This is important in the event that (1) remedial alternatives under consideration at the site involve on-site treatment, storage, or disposal, in which case RCRA may be triggered as discussed in this section; or (2) a remedial alternative involves offsite shipment. Since the generator (in this case, the agency or responsible party conducting the Superfund action) is responsible for determining whether the wastes exhibit any of these characteristics (defined in 40 CFR Sections 261.21 through 261.24), testing may be required. The lead agency must use best professional judgment to determine, on a site-specific basis, if testing for hazardous characteristics is necessary.

In determining whether to test for the toxicity characteristic using the extraction procedures (EP) toxicity test, it may be possible to assume that certain low concentrations of waste are not toxic. For example, if the total waste concentration in soil is 20 times or less the EP toxicity concentration, the waste cannot be characteristic hazardous waste. In such a case, RCRA requirements would not be applicable. In other instances, where it appears that the substances may be characteristic hazardous waste (ignitable, corrosive, reactive, or EP toxic), testing should be performed.”

Hazardous waste characteristics, as defined in 40 CFR §§ 261.21 through 261.24, are commonly referred to as ignitability, corrosivity, reactivity, and toxicity. California environmental health standards for the management of hazardous waste set forth in Cal. Code Regs., tit. 22, Division 4.5 were approved by EPA as a component of the federally authorized California RCRA program. Therefore, the characterization of RCRA waste is based on the state requirements.

The characteristics of ignitability, corrosivity, reactivity, and toxicity are defined in Cal. Code Regs., tit. 22, §§ 66261.21 through 66261.24. According to Cal. Code Regs., tit. 22, § 66261.24(a)(1)(A), “A waste that exhibits the characteristic of toxicity pursuant to subsection (a)(1) of this section has the EPA Hazardous Waste Number specified in Table I of this section which corresponds to the toxic contaminant causing it to be hazardous.” Table I assigns hazardous waste codes beginning with the letter “D” to wastes that exhibit the characteristic of toxicity; D waste codes are limited to “characteristic” hazardous wastes.

According to Cal. Code Regs., tit. 22, § 66261.10, waste characteristics can be measured by an available standardized test method or be reasonably classified by generators of waste based on their knowledge of the waste provided that the waste has already been reliably tested or if there is documentation of chemicals used.

The requirements at Cal. Code Regs., tit. 22, § 66261.24 list the toxic contaminant concentrations that determine the characteristic of toxicity. The concentration limits are in milligrams per liter (mg/L). These units are directly comparable to total concentrations in waste groundwater and surface water. For waste soils, these concentrations apply to the extract or leachate produced by the toxicity characteristic leaching procedure (TCLP).

A waste is considered hazardous if contaminants in the wastewater or in the soil TCLP extract equal or exceed the TCLP limits. TCLP testing is required only if total contaminant concentrations in soil equal or exceed 20 times the TCLP limits because TCLP uses a 20 to 1 dilution for the extract ([EPA 1988a](#)).

E1.4.2 California-Regulated, Non-RCRA Hazardous Waste

A waste determined not to be a RCRA hazardous waste might still be considered a state-regulated non-RCRA hazardous waste. The state is broader in scope in its RCRA program in determining hazardous waste. Cal. Code Regs., tit. 22, § 66261.24(a)(2) lists the total threshold limit concentrations and the soluble threshold limit concentrations for non-RCRA

hazardous waste. The state applies its own leaching procedure, the waste extraction test, which uses a different acid reagent and has a different dilution factor (tenfold). Other state requirements may be broader in scope than federal ARARs for identifying non-RCRA wastes regulated by the state. These may be potential ARARs for wastes not covered under federal ARARs. See additional subsections of Cal. Code Regs., tit. 22, § 66261.24. A waste is considered hazardous if its total concentrations exceed the total threshold limit concentrations or if the extract concentrations from the waste extraction test exceed the soluble threshold limit concentration. A waste extraction test is required when the total concentrations exceed the soluble threshold limit concentration but are less than the total threshold limit concentration (Cal. Code Regs., tit. 22, Division 4.5, Chapter 11, Appendix II [b]).

E1.4.3 Other California Waste Classifications

For waste discharged after July 18, 1997, solid waste classifications at Cal. Code Regs., tit. 27, §§ 20210, 20220, and 20230 are used to determine applicability of waste management requirements. These classifications are summarized below.

A “designated waste” under Cal. Code Regs., tit. 27, § 20210 is defined at California Water Code § 13173. Under California Water Code § 13173, designated waste is hazardous waste that has been granted a variance from hazardous waste management requirements or nonhazardous waste that consists of or contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state.

A nonhazardous solid waste under Cal. Code Regs., tit. 27, § 20220 is all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, and other discarded waste (whether of solid or semisolid consistency), provided that such wastes do not contain wastes that must be managed as hazardous wastes or wastes that contain soluble pollutants in concentrations that exceed applicable water quality objectives or could cause degradation of waters of the state.

E2.0 POTENTIAL CHEMICAL-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

E2.1 POTENTIAL FEDERAL CHEMICAL-SPECIFIC ARARs

Chemical-specific ARARs are generally health- or risk-based numerical values or methodologies applied to site-specific conditions that result in the establishment of remediation goal.

E2.1.1 Resource Conservation and Recovery Act

The key threshold question for potential soil ARARs is whether the wastes located at the four SWDAs at Site 12 would be classified as hazardous waste. Soil may be classified as a federal hazardous waste as defined by RCRA and the state-authorized program, or as non-RCRA, state regulated hazardous waste. If soil is determined to be hazardous waste, the appropriate requirements will apply.

The federal RCRA requirements at 40 CFR § 261 do not apply in California because the state RCRA program is authorized. The authorized state RCRA requirements are, therefore, considered potential federal ARARs. The applicability of RCRA requirements depends on (1) whether the waste is a RCRA hazardous waste; (2) whether the waste was initially treated, stored, or disposed of after the effective date of the particular RCRA requirement; and (3) whether activity at the site constitutes treatment, storage, or disposal as defined by RCRA. RCRA requirements may, however, be relevant and appropriate even if they are not applicable. Examples include activities that are similar to the definition of RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

The determination of whether a waste is a RCRA hazardous waste can be made by comparing the site waste with the definition of RCRA hazardous waste. The RCRA requirements at Cal. Code Regs., tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potential ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the TCLP. The maximum concentrations allowable for the TCLP listed in Cal. Code Regs., tit. 22, § 66261.24(a)(1)(B) are potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values, it is determined to be a characteristic RCRA hazardous waste.

RCRA land disposal restrictions at Cal. Code Regs., tit. 22, § 66268.1(f) are potential federal ARARs for discharging waste to land. This section prohibits the disposal of hazardous waste to land unless (1) it is treated in accordance with the treatment standards of Cal. Code Regs., tit. 22, § 66268.40 and the underlying hazardous constituents meet the Universal Treatment Standards at Cal. Code Regs., tit. 22, § 66268.48; (2) it is treated to meet the alternative soil treatment standards of Cal. Code Regs., tit. 22, § 66268.49; or (3) a treatability variance is obtained under Cal. Code Regs., tit. 22, § 66268.44. These are potentially applicable federal ARARs because they are part of the state-approved RCRA program. RCRA Treatment Standards for non-RCRA, state-regulated waste are not potentially applicable federal ARARs but they may be potentially relevant and appropriate state ARARs.

As long as the excavated material remains inside the area of contamination, however, it is not newly generated and will not be subject to RCRA generator, treatment, or other waste management requirements. Should excavated material be moved outside the area of contamination, the substantive RCRA requirements managing hazardous waste, including land disposal restrictions, would be applicable.

E2.1.2 Toxic Substances Control Act

The Toxic Substances Control Act regulates storage and disposal of polychlorinated biphenyls (PCB). These requirements have both action- and chemical-specific aspects. They address storage and disposal activities. Under the Toxic Substances Control Act, EPA has promulgated 40 CFR § 761.61 PCB remediation waste requirements that provide cleanup and disposal options for PCB remediation waste. The options include (a) self-implementing on-site cleanup and disposal, (b) performance-based disposal, and (c) risk-based disposal. The self-implementing cleanup provisions are not binding on cleanups conducted under other authorities, including actions conducted under Sections 104 or 106 of CERCLA. Therefore, they are not applicable ARARs for actions at CERCLA sites. However, in the preamble of the final rule for 40 CFR part 761, U.S. EPA indicated that it anticipates that the final rule “will be a potential ARAR at CERCLA sites where PCBs are present. EPA expects that CERCLA cleanups would typically comply with the substantive requirements of one of the three options, provided by § 761.61, upon completion of the cleanups” (63 F.R. 35,407, June 29, 1998). Therefore, 40 CFR § 761.61(a) is potentially relevant and appropriate at CERCLA sites where PCB contamination is present.

EPA designed self-implementing procedures for a general, moderate-size site where there should be a low residual environmental impact from remedial activities. The self-implementing on-site cleanup and disposal option requirements are based on the concentration of PCBs. The cleanup levels are based on four general waste categories and whether the wastes are in high- or low-occupancy areas. Under CFR § 761.61(a)(4)(i), bulk PCB remediation waste cleanup levels are as follows: (1) for high-occupancy areas, less than or equal to 1 part per million (ppm) without further conditions; where the concentration exceeds 1 and is less than or equal to 10 ppm, a cap is required; and (2) for low-occupancy areas, less than or equal to 25 ppm unless an actual or proposed change in land use to high occupancy. Up to 50 ppm may remain if the site is secured with a fence and signs are provided. Up to 100 ppm may remain if the site is capped.

Under CFR § 761.61(a)(4)(ii), nonporous surface cleanup levels are less than or equal to 10 micrograms per 100 square centimeters in high-occupancy areas, and less than 100 micrograms per 100 square centimeters in low-occupancy areas. Under CFR § 761.61(a)(4)(iii), porous surface cleanup levels are the same as for bulk PCB remediation waste at § 761.61(a)(4)(i). Under CFR § 761.61(a)(4)(iv), liquid cleanup levels are in § 761.79(b)(1) and (b)(2). Under CFR § 761.79(b)(1), the decontamination standard for water containing PCBs is (1) less than 200 micrograms per liter ($\mu\text{g/L}$) for noncontact use in a closed system where there are no releases; (2) less than 3 $\mu\text{g/L}$ for water discharged to treatment works or navigable waters, or a PCB discharge limit specified in a permit issued under CFR § 307(b) or § 402 of the Clean Water Act; or (3) less than or equal to 0.5 $\mu\text{g/L}$ for unrestricted use. Under CFR § 761.79(b)(2), the decontamination standard for organic liquids and non-aqueous inorganic liquids is less than 2 milligrams per kilogram.

A high-occupancy area is defined as any area where PCB remediation waste has been disposed of on site and where occupancy for any individual not wearing dermal and respiratory protection for a year is 335 hours or more for bulk PCB remediation waste and 840 hours or more for nonporous surfaces. Criteria for low-occupancy areas are less than 335 hours for bulk PCB remediation waste and less than 840 hours for nonporous surfaces.

PCB remediation waste means waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations:

- Materials disposed of before April 18, 1978 that currently exceed or are equal to 50 ppm regardless of the concentration of the original spill
- Materials that are at any volume or concentration in which the original source exceeded or was equal to 500 ppm beginning on April 18, 1978, or exceeded or was equal to 50 ppm beginning on July 2, 1979
- Materials that are currently at any concentration if the PCBs are spilled or released from a source not authorized under this part.

PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, including but not limited to environmental media, sewage sludge, and buildings and other man-made structures, porous surfaces, and nonporous surfaces.

The substantive provisions of Title 40 CFR § 761.61(a)(4)(i) are potential chemical-specific ARARs for PCB-contaminated soil at Site 12.

E2.2 POTENTIAL STATE CHEMICAL-SPECIFIC ARARs

E2.2.1 State RCRA Requirements

State RCRA requirements included within the EPA-authorized RCRA program for California are considered to be potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 FR 60848). The Cal. Code Regs., tit. 22, Division 4.5, requirements that are part of the state-approved RCRA program would be potential state ARARs for non-RCRA, state-regulated hazardous wastes.

The site waste characteristics need to be compared to the definition of non-RCRA, state-regulated hazardous waste. The non-RCRA, state-regulated waste definition requirements at Cal. Code Regs. tit. 22, § 66261.24(a)(2) are potential state ARARs for determining whether other RCRA requirements are potential state ARARs. This section lists the total threshold limit concentrations and soluble threshold limit concentrations. The site waste may be compared to these thresholds to determine whether it meets the characteristics for a non-RCRA, state-regulated hazardous waste.

E2.2.2 California Code of Regulations Title 27, Division 2, Subdivision 1

Cal. Code Regs., tit. 27, §§ 20210, 20220 and 20230 are state definitions for designated, nonhazardous and inert waste. These may be potential ARARs for soil that meets the definitions. These soil classifications determine state classification and siting requirements for discharging waste to land.

E2.2.3 California Code of Regulations Title 27, Air Requirements

Cal. Code Regs., tit. 27, § 20921 (a), states:

- The concentration of methane gas must not exceed 1.25 percent by volume in air within on-site structures.
- The concentration of methane gas migrating from the landfill must not exceed 5 percent by volume in the air at the facility property boundary (or alternative boundary).
- Trace gases must be controlled to prevent adverse acute and chronic exposure to toxic or carcinogenic compounds.
- This section is a potential ARAR for methane present at the four SWDAs at Site 12.

E2.3 POTENTIAL TO-BE-CONSIDERED REQUIREMENTS

The Navy identified the EPA Region 9 risk-based preliminary remediation goal (PRG) for lead in residential soil as a TBC ([EPA 1999](#)). The PRG for lead is 400 mg/kg, and this has been accepted by the Navy and DTSC as the cleanup goal for lead concentrations for prior Site 12 removal actions. The PRG will be used in this removal action.

E3.0 POTENTIAL LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

This section discusses potential location-specific ARARs for Site 12. Location-specific ARARs are restrictions on the concentrations of hazardous substances or the conduct of activities as a result of the characteristics of the site or its immediate environment. Site 12 does not encompass any historic properties included or eligible for inclusion on the National Register of Historic Places. No scientific, prehistoric, or archeological data have been identified at Site 12. There are no floodplains or wetlands on Site 12.

The terrestrial habitat of Treasure Island is of poor quality for wildlife species because the island is predominantly covered with urbanized areas. Because of the low-quality habitat of Site 12, no receptors of concern use the area. Disturbance from vehicular traffic and general human presence also reduces the quality of the habitat to wildlife species at this site.

E3.1 POTENTIAL FEDERAL LOCATION-SPECIFIC ARARs

The only location-specific ARAR identified for this removal action is the Coastal Zone Management Act (CZMA) (16 USC §§ 1451–1464). The CZMA (16 USC §§ 1451–1464) specifically excludes federal lands from the coastal zone (16 USC § 1453[1]). Therefore, the CZMA is not potentially applicable to Site 12. The CZMA will be evaluated as a potentially relevant and appropriate requirement. Section 1456(c)(1)(A) requires each federal agency activity within or outside the coastal zone that affects any land or water use or natural resource to

conduct its activities in a manner that is consistent to the maximum extent practicable with enforceable policies of approved state management programs.

E3.2 POTENTIAL STATE LOCATION-SPECIFIC ARARS

McAteer-Petris Act and San Francisco Bay Plan. California's approved coastal management program includes the San Francisco Bay Plan (Bay Plan) developed by the San Francisco Bay Conservation and Development Commission (BCDC). The BCDC was formed under the authority of the McAteer-Petris Act, California Government Code § 66600 et seq., which authorizes the BCDC to regulate activities within San Francisco Bay and its shoreline (including 100 feet landward from the shoreline) in conformity with the policies of the Bay Plan. The McAteer-Petris Act and the Bay Plan were developed primarily to halt uncontrolled development and filling of the bay. Their broad goals include reducing bay fill and disposal of dredged material in the bay, maintaining marshes and mudflats to the fullest extent possible to conserve wildlife and abate pollution, and protecting the beneficial uses of the bay. Because the federal CZMA, which requires compliance with approved state coastal zone management programs, is a potential ARAR, the McAteer-Petris Act and the Bay Plan are potential ARARs.

E4.0 POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Action-specific ARARs are technology- or activity-based requirements or limitations for remedial actions. These requirements are triggered by the particular remedial actions conducted at a site and suggest how a selected remedial alternative should be achieved. These action-specific requirements do not in themselves determine the remedial alternative; rather, they indicate how a selected alternative must be conducted.

E4.1 ALTERNATIVE 1: SOIL EXCAVATION TO 2 FEET BGS (EXCLUDING HARDSCAPE)

Alternative 1 consists of the following components:

- Excavation of chemical- and solid waste-contaminated soil in the SWDAs
- Excavation of the methane impacted area
- Backfilling of excavated areas with imported material and site restoration
- Disposal of chemical- and solid-waste-contaminated soil at a permitted off-site facility
- Post-closure monitoring of land use and drainage and erosion control

E4.1.1 Excavation and Off-Site Disposal

E4.1.1.1 Federal Requirements

Resource Conservation and Recovery Act

As introduced under [Section E2.0](#), Chemical-Specific ARARs, RCRA is a potential ARAR for excavation and off-site disposal of soil. Any excavated waste will be characterized to determine whether it is a hazardous waste (Cal. Code Regs., tit. 22, §§ 66262.10(a) and 66262.11). Any hazardous waste accumulated on-site, including waste contained in soil, must comply with the RCRA requirements set forth in 40 CFR § 264.554(d)(1)(i-ii) and (d)(2), (e), (f), (h), (i), (j), and (k). This section provides that a generator may accumulate solid remediation waste in a staging pile for storage only up to 2 years, during remedial actions without triggering land disposal restrictions.

Clean Air Act

The Bay Area Air Quality Management District (BAAQMD) by delegation of authority from the EPA implements the federal Clean Air Act. Therefore, BAAQMD regulations are described as Clean Air Act requirements. The following BAAQMD regulation is a potential ARAR for excavation at Site 12:

- Regulation 6-302: Opacity Limitation (prohibiting emissions for a period aggregating more than 3 minutes in any hour an emission equal to or greater than 20 percent opacity).

Federal Hazardous Materials Transportation Law

The Federal Hazardous Materials Transportation Laws (49 USC § 5101-5127), implemented at 49 CFR §§ 171.2(f), 171.2(g), 172.300, 172.301, 172.302, 172.303, 172.304, 172.312, 172.400, and 172.504, are potential relevant and appropriate requirements for transporting hazardous waste. These sections consist of requirements for transporting hazardous wastes, including representations that containers are safe, prohibitions on altering labels, marking requirements, labeling requirements, and placarding requirements.

Clean Water Act

In addition, the Navy has identified the following potential federal action-specific ARAR under the Clean Water Act:

- Storm water discharge requirements for construction that will disturb 1 or more acres at 40 CFR §§ 122.44(k)(2) and (4)

This regulation requires the use of best management practices to control or abate the discharge of pollutants when authorized under Clean Water Act § 402(p) to control storm water discharges. Under the Clean Water Act and its implementing regulations, individual National Pollutant Discharge Elimination System permits, or coverage under promulgated storm water general permits, are required for construction that disturbs at least 1 acre. The State of California has promulgated a storm water general permit as Order Number 99-08-DWQ (Division of Water Quality). Under CERCLA § 121(e)(1), no federal, state, or local permit is required for any remedial action conducted entirely on site, where it is selected and carried out in compliance with CERCLA § 121. The Navy is therefore not required to obtain an individual storm water permit or submit a notice of intent to discharge under the state's general permit. The Navy will, however, use the substantive requirements of the state's general permit for storm water discharges as TBCs for complying with the requirement to apply best management practices for storm water discharges promulgated at 40 CFR § 122.44(k)(2) and (4).

E4.1.1.2 State Requirements

In addition, the Navy will use the substantive provisions of the state's general permit, Order Number 99-08-DWQ, as TBCs for complying with the storm water discharge requirements under the potential federal Clean Water Act ARAR at 40 CFR §§ 122.44(k)(2) and (4).

E4.1.2 Protective Layer (Backfill) and Site Restoration

After excavation is complete, a geotextile fabric and a protective layer of imported clean backfill would be placed over the top of soil remaining in the excavation to prevent direct contact by residents. Backfilling would occur after confirmation sampling has been conducted in the excavated areas. Imported fill would be properly compacted. After the excavation has been backfilled, the impacted areas would be restored.

E4.2 ALTERNATIVE 2: SOIL EXCAVATION TO 2 FEET BGS (INCLUDING HARDSCAPE)

Alternative 2 consists of the following components:

- Excavation of chemical- and solid waste-contaminated soil in the SWDAs
- Excavation of methane impacted area
- Backfilling of excavated areas with imported material and site restoration
- Disposal of chemical- and solid-waste-contaminated soil at a permitted off-site facility
- Post-closure monitoring of land use and drainage and erosion control

In addition, institutional controls (IC) would be necessary to prevent long-term exposure to underlying soil in excavated areas.

The same ARARs which apply to Alternative 1, also apply to Alternative 2.

E4.3 ALTERNATIVE 3: SOIL EXCAVATION TO 4 FEET BGS (EXCLUDING HARDSCAPE)

Alternative 3 consists of the following components:

- Excavation of chemical- and solid waste-contaminated soil in the SWDAs
- Excavation of methane impacted area
- Backfilling of excavated areas with imported clean material and site restoration
- Disposal of chemical- and solid-waste-contaminated soil at a permitted off-site facility
- Post-closure monitoring of land use and drainage and erosion control

In addition, ICs would be necessary to prevent long-term exposure to underlying soil in excavated areas.

The same ARARs which apply to Alternative 1, also apply to Alternative 3.

E4.4 ALTERNATIVE 4: SOIL EXCAVATION TO 4 FEET BGS INCLUDING HARDSCAPE

Alternative 4 consists of the following components:

- Excavation of chemical- and solid waste-contaminated soil in the SWDAs
- Excavation of methane impacted area
- Backfilling of excavated areas with imported material and site restoration
- Disposal of chemical- and solid-waste-contaminated soil at a permitted off-site facility
- Post-closure monitoring of land use and drainage and erosion control

In addition, ICs would be necessary to prevent long-term exposure to underlying soil in excavated areas.

The same ARARs which apply to Alternative 1, also apply to Alternative 4.

E4.5 ALTERNATIVE 5: CAPPING

Major components of this alternative include the following:

- Clearing and grading of topsoil
- Excavation of the methane impacted area
- Installation of a storm water drainage system and gas venting system

- Capping backyards and unpaved common areas with a cast-in-place concrete slab
- Disposal of chemical- and solid waste-contaminated topsoil at a permitted off-site facility
- Post-closure monitoring of land use and drainage and erosion control

The same ARARs which apply to Alternative 1, also apply to Alternative 5 for disposal of soil. In addition, action-specific ARARs for capping of contaminated soil within the SWDAs include the following requirements of Cal. Code Regs., tit. 27:

- Engineered alternative (Cal. Code Regs. tit. 27, §§ 20080(b) and (c) and 21090): Under these sections, engineered alternatives to the prescriptive landfill cover are allowed when the discharger can demonstrate that the construction or prescriptive standard is not feasible and there is a specific engineered alternative.
- Dust control (Cal. Code Regs. tit. 27, § 20800): The operator shall take adequate measures to minimize the creation of dust and prevent safety hazards due to obscured visibility.
- Drainage (Cal. Code Regs. tit. 27, 20820(a)(1)-(3)): The drainage system shall be designed and maintained to meet the following standards:
 - (1) Ensure integrity of roads, structures, and gas monitoring and control systems
 - (2) Prevent safety hazards
 - (3) Prevent exposure of waste
- Litter (Cal. Code Regs. tit. 27, § 20830): Litter shall be controlled, routinely collected and disposed of properly. Windblown materials shall be controlled to prevent injury to the public and personnel. Controls shall prevent the accumulation, or off-site migration, of litter in quantities that create a nuisance or cause other problems.
- Gas (Cal. Code Regs. tit. 27, § 20919): Site owner shall cause the site to be monitored for presence and movement of gases, and shall take necessary action to control such gases.
- Final cover (Cal. Code Regs. tit. 27, § 21140(a)-(c)(1)-(3)): The final cover must function with minimum maintenance and provide waste containment to protect public health and safety by controlling at a minimum, vectors, fire, odor, litter and landfill gas migration. The final cover must also be compatible with post-closure land use.
- Final grading (Cal. Code Regs. tit. 27, § 21142(a)-(b)(1)-(2)): Requires final grades must be designed and maintained to reduce impacts to health and safety and take into consideration any post-closure land use.

- Slope stability (Cal. Code Regs. tit. 27, § 21145(a)-(b)): Requires the operator to ensure the integrity of final slopes under both static and dynamic conditions to protect public health and safety and prevent damage to post-closure land-uses, roads, structures, utilities, gas monitoring and control systems, leachate collection and control systems to prevent public contact with leachate, and prevent exposure of waste.
- Post-Closure Land Use (Cal. Code Regs. tit. 27, § 21190(a)): Requires that post-closure land uses shall be designed and maintained to: (1) protect public health and safety and prevent damage to structures, roads, utilities and gas monitoring and control systems; (2) prevent public contact with waste, landfill gas and leachate; and (3) prevent landfill gas explosions.

E5.0 REFERENCES

- U.S. Environmental Protection Agency (EPA). 1988a. "CERCLA Compliance with Other Laws Manual, Draft Guidance." EPA/540/G-89/006. Office of Emergency and Remedial Response. Washington, D.C. August.
- EPA. 1988b. "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA." Office of Solid Waste and Emergency Response Directive 9355.3-01, -02. EPA/540/G-89/004.
- EPA. 1991. "ARARs Q's and A's: General Policy, RCRA, CWA, SDWA, Post-ROD Information and Contingent Waivers." Office of Solid Waste and Emergency Response Publication 9234.2-01/FSA. Washington, DC. July.
- EPA. 1999. Letter Providing U.S. Environmental Protection Agency (EPA) Region 9 Preliminary Remediation Goals (PRG). From Stanford J. Smucker, Ph.D., to PRG Table Mailing List. EPA Region 9. October.

TABLES

TABLE E-1: POTENTIAL CHEMICAL-SPECIFIC^a APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
 Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

| Requirement | Prerequisite | Citation ^b | Preliminary ARAR Determination | Comments |
|---|-----------------------|---|--------------------------------|---|
| Soil | | | | |
| Federal Requirements | | | | |
| Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901–6991[i])^c | | | | |
| Defines RCRA hazardous waste. A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations. | Waste | Cal. Code Regs., tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 | Applicable | These requirements are potentially applicable for determining whether waste is hazardous. |
| Toxic Substances Control Act (15 USC, ch. 53, §§ 2601–2692)^c | | | | |
| This act regulates the storage and disposal of PCB remediation waste. There are three options: (1) self-implementing on-site cleanup and disposal; (2) performance-based disposal using existing approved disposal technologies; and (3) risk-based disposal. This act is applicable to soils, debris, sludge, or dredged materials contaminated with PCBs at concentrations greater than 50 ppm. | PCB-contaminated soil | 40 CFR § 761.61(a)(4), (b), and (c) | Relevant and appropriate | This section is relevant and appropriate for the disposal of PCBs. |
| State Requirements | | | | |
| Cal/EPA Department of Toxic Substances Control^c | | | | |
| Definition of “non-RCRA hazardous waste.” | Waste | Cal. Code Regs. tit. 22, § 66261.22(a)(3) and (4), § 66261.24(a)(2)–(a)(8), § 66261.101, § 66261.3(a)(2)(C) or § 66261.3(a)(2)(F) | Applicable | This requirement is potentially applicable for determining whether a waste is a non-RCRA hazardous waste. |
| State and Regional Water Quality Control Boards^c | | | | |
| Definitions of designated waste, nonhazardous waste, and inert waste | Waste | Cal. Code Regs. tit 27, §§ 20210, 20220 and 20230 | Applicable | These requirements are potential ARARs for classifying waste. |

TABLE E-1: POTENTIAL CHEMICAL-SPECIFIC^a APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

| Requirement | Prerequisite | Citation ^b | Preliminary ARAR Determination | Comments |
|--|----------------------------------|----------------------------------|--------------------------------|--|
| California Integrated Waste Management Board^c | | | | |
| Controls release of methane | Release of methane from landfill | Cal. Code Regs. tit. 27, § 20921 | Applicable | Provides that methane must not exceed 1.25 percent by volume in air within on-site structures, and concentrations of methane migrating must not exceed 5 percent by volume in air at the property boundary |
| U.S EPA Preliminary Remediation Goals | | | | |
| Preliminary remediation goal for lead in residential land-use areas. | Lead-contaminated soil | EPA Region 9 PRGs | To be considered | This guidance is useful for setting cleanup goals for protecting human health from lead-contaminated soil. |

Notes:

- a Many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables.
- b Only the substantive provisions of the requirements cited in this table are potential ARARs.
- c Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of specific citations are considered potential ARARs.

| | | | |
|-----------------|--|------|--|
| § | Section | PCB | Polychlorinated biphenyl |
| §§ | Sections | ppm | Part per million |
| ARAR | Applicable or relevant and appropriate requirement | PRG | Preliminary remediation goal |
| Cal. Code Regs. | <i>California Code of Regulations</i> | RCRA | Resource Conservation and Recovery Act |
| Cal/EPA | California Environmental Protection Agency | TCLP | Toxicity characteristic leaching procedure |
| CFR | <i>Code of Federal Regulations</i> | tit. | Title |
| EPA | U.S. Environmental Protection Agency | USC | <i>United States Code</i> |
| Navy | U.S. Department of the Navy | | |

TABLE E-2: POTENTIAL LOCATION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

| Location | Requirement | Prerequisite | Citation ^a | Preliminary ARAR Determination | Comments |
|--|--|---|--|--------------------------------|--|
| Federal Requirements | | | | | |
| Coastal Zone Management Act (16 USC §§ 1451–1464)^b | | | | | |
| Within coastal zone | Conduct activities in a manner consistent with approved state management programs. | Activities affecting the coastal zone, including lands thereunder and adjacent shore land | 16 USC § 1456(c) 15 CFR § 930 | Relevant and appropriate | Remedial alternatives will comply with the CZMA and San Francisco Bay Plan |
| State Requirements | | | | | |
| McAteer-Petris Act (California Government Code §§66600 through 66661)^b | | | | | |
| Within the San Francisco Bay coastal zone | Reduce fill and disposal of dredged material in San Francisco Bay, maintain marshes and mudflats to the fullest extent possible to conserve wildlife, abate pollution, and protect the beneficial uses of the bay. | Activities affecting the San Francisco Bay and 100 feet landward of the shoreline. | San Francisco Bay Plan at Cal. Code Regs. tit. 14, §§10110 through 11990 | Relevant and appropriate | The San Francisco Bay Plan is an approved state coastal zone management program, and the Navy will continue to conduct its response actions in accordance with the goals of the San Francisco Bay Plan |

Notes:

- a Only the substantive provisions of the requirements cited in this table are potential ARARs
- b Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs
- § Section
- §§ Sections
- ARAR Applicable or relevant and appropriate requirement
- CFR *Code of Federal Regulations*
- CZMA Coastal Zone Management Act
- Navy U.S. Department of the Navy
- USC *United States Code*

TABLE E-3: POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

| Action | Requirement | Prerequisite | Citation | Preliminary ARAR Determination | Comments |
|---|--|--|--|--------------------------------|---|
| Excavation and Off-Site Disposal Of Waste | | | | | |
| Federal Requirements | | | | | |
| Resource Conservation and Recovery Act (42 USC, Chapter 82, §§ 6901-6991[i])^a | | | | | |
| On-site waste generation | Definition of RCRA hazardous waste | Soil and water | Cal. Code Regs., tit. 22, §§ 66262.10(a), 66262.11 | Applicable | The requirements of Cal. Code Regs., tit. 22, Division 4.5, Chapter 14 are potentially applicable for determining whether material generated contains hazardous waste. These requirements may be relevant and appropriate to material that is similar or identical to RCRA hazardous waste or non-RCRA hazardous waste. |
| Waste pile | A generator may accumulate solid remediation waste for storage only up to 2 years, during remedial operations without triggering LDRs. | Hazardous remediation waste temporarily stored in piles. | 40 CFR § 264.554(d) (1)(i-ii) and (d)(2), (e), (f), (h), (i), (j), and (k) | Applicable | These requirements are potentially applicable for temporary waste storage during remediation. |
| Clean Air Act (42 USC § 7401 et seq.)^a | | | | | |
| Excavation | Sets forth opacity limitations. | Excavation | BAAQMD Regulation 6-302 | Applicable | This requirement is potentially applicable for excavation. |
| Federal Hazardous Materials Transportation Law (49 USC §§ 5101-5127)^a | | | | | |
| Transportation of hazardous material | Sets forth requirements for transporting hazardous waste including representations that containers are safe, prohibitions on altering labels, marking requirements, labeling requirements, and placarding requirements | Interstate carriers transporting hazardous waste and substance by motor vehicle. | 49 CFR §§ 171.2(f), 171.2(g), 172.300, 172.301, 172.302, 172.303, 172.304, 172.312, 172.400, 172.504 | Relevant and appropriate | These requirements are potentially relevant and appropriate for transporting hazardous materials on site. |
| Clean Water Act, as Amended (33 USC, ch. 26, §§ 1251-1387)^a | | | | | |
| Excavation | Construction that disturbs at least 1 acre must use best management practices to control storm water discharges. | Construction activities at least 1 acre in size. | Clean Water Act §402 40 CFR §122.44(k)(2) and (4) | Applicable | The Navy anticipates disturbing more than 1 acre in the alternatives that involve excavation and the capping alternative. The Navy will use the state general storm water discharge permit, Order 99-08-DWQ, as TBCs for complying with the storm water discharge requirements under the CWA. |

TABLE E-3: POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

| Action | Requirement | Prerequisite | Citation | Preliminary ARAR Determination | Comments |
|--|---|---|---|--------------------------------|--|
| State Requirements | | | | | |
| State Water Resources Control Board and Regional Water Quality Control Boards^a | | | | | |
| Excavation of soil and construction of covers | Requires best management practices to control storm water discharges. | Construction on at least 1 acre. | SWRCB Order 99-08-DWQ | TBC | The Navy is not required to obtain a permit for on-site response actions conducted under CERCLA. The Navy will use the substantive requirements of this general storm water discharge permit as TBCs for complying with the potential federal Clean Water Act ARAR requiring control of storm water discharges at 40 CFR § 122.44(k)(2) and (4). |
| Capping | | | | | |
| Engineered alternative | Alternatives to construction or prescriptive standards | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, §§ 20080(b) and (c) and 21090 | Relevant and appropriate | Potentially relevant and appropriate for capping. |
| Dust control | Requires adequate measures to minimize the creation of dust and prevent safety hazards resulting from obscured visibility | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 20800 | Relevant and appropriate | The substantive requirements of this section are potentially relevant and appropriate for closing disposal sites. |

TABLE E-3: POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

| Action | Requirement | Prerequisite | Citation | Preliminary ARAR Determination | Comments |
|------------------------------|---|---|--|--------------------------------|---|
| Drainage and erosion control | Requires the drainage system be designed and maintained to ensure integrity of roads, structures, and gas monitoring and control systems; prevent safety hazards; and prevent exposure of waste | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 20820 | Relevant and appropriate | The substantive requirements of this section are potentially relevant and appropriate for closing disposal sites. |
| Litter control | Requires litter and loose material be routinely collected and disposed of properly | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 20830 | Relevant and appropriate | The substantive requirements of this section are potentially relevant and appropriate for closing disposal sites. |
| Gas control | Site owner shall cause the site to be monitored for presence and movement of gases, and shall take necessary action to control such gases. | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 20919 | Relevant and appropriate | The substantive requirements of this section are potentially relevant and appropriate for closing disposal sites. |
| Final cover | Contains general standards for the design of the final cover | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 21140(a) and (b) | Relevant and Appropriate | The substantive requirements of this section are potentially relevant and appropriate for closing disposal sites. |

TABLE E-3: POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

| Action | Requirement | Prerequisite | Citation | Preliminary ARAR Determination | Comments |
|-----------------------|--|---|--------------------------------------|--------------------------------|--|
| Final grading | Contains general standards for landfill grading | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 21142(a) | Relevant and Appropriate | The substantive requirements of this section are potentially relevant and appropriate for closing disposal sites. |
| Slope stability | Contains general standards for slope stability | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 21145(a) | Relevant and Appropriate | The substantive requirements of this section are potentially relevant and appropriate for closing disposal sites. |
| Post-closure Land use | Contains requirements for post-closure land use to protect public health and safety. | Cal. Code Regs., tit. 27 requirements are only relevant to waste discharged after July 18, 1997 (the effective date of the consolidated regulations), unless otherwise noted. | Cal. Code Regs., tit. 27, § 21190(a) | Relevant and Appropriate | Requires that post-closure land uses shall be designed and maintained to: (1) protect public health and safety and prevent damage to structures, roads, utilities and gas monitoring and control systems; (2) prevent public contact with waste, landfill gas and leachate; and (3) prevent landfill gas explosions. |

TABLE E-3: POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (CONTINUED)

Engineering Evaluation/Cost Assessment Report for Site 12, Treasure Island, San Francisco, California

Notes:

a Statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the Navy accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered potential ARARs

b The Clean Air Act ARARs apply only to the alternatives involving excavation.

| | | | |
|-----------------|---|-------------|--|
| § | Section | et seq. | And as follows |
| §§ | Sections | LDR | Land disposal restriction |
| ARAR | Applicable or relevant and appropriate requirement | Navy | U.S. Department of the Navy |
| BAAQMD | Bay Area Air Quality Management District | RCRA | Resource Conservation and Recovery Act |
| Cal. Code Regs. | <i>California Code of Regulations</i> | SWRCB | State Water Resources Control Board |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act | TBC. | To be considered |
| CFR | <i>Code of Federal Regulations</i> | <i>tit.</i> | <i>Title</i> |
| CWA | Clean Water Act | USC | <i>United States Code</i> |
| DTSC | California Environmental Protection Agency Department of Toxic Substances Control | | |
| DOT | U.S. Department of Transportation | | |
| DWQ | Division of Water Quality | | |

APPENDIX F
DETAILED COST OPINIONS

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|--|------|----------|-----------|--------------------|-------------|---------------------|---|--|
| A | CAPITAL COSTS | | | | | | | | |
| | DIRECT COSTS | | | | | | | | |
| 1 | Mobilization | | | | | | | | |
| | Locate utilities | LS | 1 | \$25,000 | \$25,000 | \$25,000.00 | | | Assumed |
| | Mobilize heavy equipment (2 hydraulic excavators, 1 wheel loader) | LS | 1 | \$ 4,217 | \$4,217 | 3,456 | 1.22 | 3 trailer trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | Temporary Office 32' X 8' | MO | 4 | \$ 303 | \$1,213 | 249 | 1.22 | Estimated time for excavation | Means 2005., #99 04 0102 Environmental Remediation Cost Data - Assemblies |
| | Truck scale rental | MO | 4 | \$ 3,782 | \$15,128 | 3,100 | 1.22 | Estimated time for excavation | Means 2005., #33 01 0462, Environmental Remediation Cost Data - Unit Price |
| | HiVol Samplers (Continuous Monitoring and Recording of Air Flow) | EA | 3 | \$ 6,953 | \$20,858 | 5,699 | 1.22 | 3 HiVols | Means 2005., #33 02 1507, Environmental Remediation Cost Data - Unit Price |
| | Instrument Shelter | EA | 3 | \$ 1,091 | \$3,272 | 894 | 1.22 | 3 shelters for HiVols | Means 2005., #33 02 0338, Environmental Remediation Cost Data - Unit Price |
| | Baseline data (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 21 | \$ 870 | \$18,267 | 713 | 1.22 | 3 HiVols for 1 week to establish baseline | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, Pesticides/ PCBs) |
| | Daily results of air monitoring from HiVols (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 420 | \$ 870 | \$365,346 | 713 | 1.22 | 3 HiVols for 12 weeks | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, Pesticides/ PCBs) |
| | Health & safety program | LS | 1 | 75,000 | \$75,000 | \$75,000 | | | Assumed |
| | Mobilization Subtotal | | | | \$528,301 | | | | |
| 2 | Fencing | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | Remove wood fence | LF | 3,148 | \$ 2.42 | \$7,604 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 3,148 | \$ 18.00 | \$56,648 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA 1205/1207/1209/1211/1213 | | | | | | | | |
| | Remove wood fence | LF | 2,067 | \$ 2.42 | \$4,993 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 2,067 | \$ 18.00 | \$37,196 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|-----------|-----------|--------------------|-----------|---------------------|---|--|
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | Remove wood fence | LF | 1,535 | \$ 2.42 | \$3,708 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 1,535 | \$ 18.00 | \$27,622 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA Bigelow | | | | | | | | |
| | Remove wood fence | LF | 530 | \$ 2.42 | \$1,280 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 530 | \$ 18.00 | \$9,537 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Fencing Subtotal | | | | \$148,589 | | | | |
| 3 | Excavation to 2 ft bgs in Backyards, roadways and Unpaved Common Areas | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | Number of Backyards | # | 13 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | Total Backyard, Roadway and common Area | SF | 107,766 | | | | | SF calculated using Microstation | |
| | Total Backyard roadway and Common Area Volume | CY | 7,983 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 2.5 | \$ 94.83 | \$235 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 77 | \$ 75.12 | \$5,808 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 2,011,632 | \$ 0.01 | \$24,542 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 12 weeks | Means 2005., #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 5,987 | \$ 8.91 | \$53,346 | \$7.30 | 1.22 | Use for 75% of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1800 Site work and landscape Cost Data |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 1,197 | \$ 2.35 | \$2,810 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 3800 Site work and landscape Cost Data |
| | Hand excavation for utilities and edge of buildings | CY | 443 | \$ 85.88 | \$38,043 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|--|
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 7,983 | \$ 2.11 | \$16,824 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1200 Site work and landscape Cost Data |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 107,766 | 0.22 | \$23,665 | \$0.18 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 7,983 | \$ 39.04 | \$311,643 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 2.5 | 4,624 | \$11,439 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1207/1209/1211/1213 | | | | | | | | |
| | <i>Number of Backyards</i> | # | 18 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total Backyard, roadway and Common Area</i> | SF | 50,536 | | | | | SF calculated using Microstation | |
| | <i>Total Backyard, roadway and Common Area Volume</i> | CY | 3,743 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 1.2 | \$ 94.83 | \$110 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 117 | \$ 75.12 | \$8,804 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 943,339 | \$ 0.01 | \$11,509 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 12 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 2,808 | \$ 8.91 | \$25,016 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 562 | \$ 2.35 | \$1,318 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 141 | \$ 85.88 | \$12,108 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 3,743 | \$ 2.11 | \$7,889 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|--|------|----------|-----------|--------------------|------------|---------------------|--|---|
| | Place marker fabric at bottom of excavation | SF | 50,536 | 0.26 | \$12,947 | \$0.21 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 3,743 | \$ 39.04 | \$146,143 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 1.2 | 4,624 | \$5,364 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA Bigelow | | | | | | | | |
| | <i>Number of Backyards</i> | # | 12 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total Backyard, roadways and Common Area</i> | SF | 16,288 | | | | | SF calculated using Microstation | |
| | <i>Total Backyard, roadways and Common Area Volume</i> | CY | 1,207 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.3 | \$ 94.83 | \$27 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways(unreinforced concrete, 6" thick) with air equipment | CY | 28 | \$ 75.12 | \$2,087 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadway is 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 304,043 | \$ 0.01 | \$3,709 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 12 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 905 | \$ 8.91 | \$8,063 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 181 | \$ 2.35 | \$425 | \$1.92 | 1.22 | Use for 15% of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 114 | \$ 85.88 | \$9,790 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at 1.5 ft | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 1,207 | \$ 2.11 | \$2,543 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 16,288 | 0.28 | \$4,570 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 1,207 | \$ 39.04 | \$47,102 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Seeding, vegetative cover | ACRE | 0.4 | 4,624 | \$1,729 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | Number of Backyards | # | 19 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | Total Backyard and Common Area | SF | 34,570 | | | | | SF calculated using Microstation | |
| | Total Backyard and Common Area Volume | CY | 2,561 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.6 | \$ 94.83 | \$56 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 44 | \$ 75.12 | \$3,304 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadway is 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 645,307 | \$ 0.01 | \$7,873 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 12 weeks | Means 2005., #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 1,921 | \$ 8.91 | \$17,113 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 384 | \$ 2.35 | \$902 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 108 | \$ 85.88 | \$9,275 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 2,561 | \$ 2.11 | \$5,397 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 34,570 | 0.28 | \$9,700 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, inc) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 2,561 | \$ 39.04 | \$99,971 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 0.8 | 4,624 | \$3,670 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Excavation of Common Areas | | | | \$963,704 | | | | |
| 4 | Radiological Soil Screening | | | | | | | | |
| | Radiological Soil Plan | LS | 1 | 7,000.00 | \$7,000 | | | | Assumed |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|------------|--------------------|------------|---------------------|--|--|
| | Surface and subsurface Radiological Soil Screening | LS | 1 | 80,000.00 | \$80,000 | | | | |
| | Data Report | LS | 1 | 10,000.00 | \$10,000 | | | | |
| | Radiological soil screening | | | | \$97,000 | | | | |
| 5 | Confirmation Sampling | | | | | | | | |
| | Excavation wall length | LF | 7,543 | | | | | Length estimated using Microstation | |
| | Lead analysis (EPA 6010B) with 24 hour TAT | EA | 320 | \$42.00 | \$13,440 | \$42.00 | | Sidewall sample every 40 LF of wall length, Bottom sample every 1600 | Average vendor quote with 24-hr TAT |
| | QC samples for lead analysis (EPA 6010B) with 24 hour TAT | EA | 80 | \$42.00 | \$3,360 | \$42.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | PAH soil analysis (modified EPA 8270) with 24 HR TAT | EA | 320 | \$469.20 | \$150,144 | \$469.20 | | Sidewall sample for every 40 feet wall length, Bottom sample every | Average vendor quote with 24-hr TAT |
| | QC samples for PAH soil analysis (modified EPA 8270) with 24 hour TAT | EA | 80 | \$469.20 | \$37,536 | \$469.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Pesticides (EPA 8081)/PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 320 | \$455.20 | \$145,664 | \$455.20 | | Sidewall sample every 40 LF of wall length. Bottom sample every 1600 | Average vendor quote with 24-hr TAT |
| | QC samples for pesticides (EPA 8081)/PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 80 | \$455.20 | \$36,416 | \$455.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 6 | \$1,530.00 | \$9,410 | \$1,530.00 | | Sidewall sample every 40 LF of wall length. Wall length estimated as 246 feet using Microstation | Average vendor quote with 24-hr TAT |
| | QC samples for Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 2 | \$1,530.00 | \$3,060 | \$1,530.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 14 | \$170.00 | \$2,444 | \$170.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 575 feet | Average vendor quote with 24-hr TAT |
| | QC samples for Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 3 | \$170.00 | \$510 | \$170.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Subcontracted sampling, one-man crew | DAY | 123 | \$ 738 | \$90,456 | \$605.00 | 1.22 | Assume 10 samples/day | Means 2005., #33 02 9907, Environmental Remediation Cost Data - Unit Price |
| | Surveying, 2-man crew | DAY | 123 | \$ 1,067 | \$130,784 | \$874.73 | 1.22 | Same as sampling crew | Means 2005., #99 24 1201, Environmental Remediation Cost Data - Unit Price |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|------------|--------------------|-----------|---------------------|---|--|
| | Confirmation Sampling Subtotal | | | | \$623,224 | | | | |
| 6 | Transportation & Disposal of Excavated Material | | | | | | | | |
| | <i>Volume of demolished concrete and excavated waste</i> | CY | 16,299 | | | | | Total summation of excavated waste volume | |
| | Waste Profile Sampling & Analysis | | 33 | \$1,136.40 | \$37,501 | | | Assume one sample every 500 CY | |
| | Kettleman Hills Facility Class I | | | | | | | | |
| | Disposal fee (includes Kings County and BOE tax) | TON | 24,938 | \$31.12 | \$776,070 | \$25.52 | | Assume 1.8 tons/cy and 85% of excavated waste | Quote from Waste Management for Kettleman Hills Facility |
| | Transportation via end dumps | TON | 24,938 | \$41.00 | \$1,022,457 | \$41.00 | | | Quote from Waste Management for Kettleman Hills Facility |
| | Altamont Landfill Class II | | | | | | | | |
| | Disposal fee | TON | 4,401 | \$29.72 | \$130,792 | \$12.50 | | Assume 1.8 tons/cy and 15% of excavated waste | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation via end dumps | TON | 4,401 | \$18.00 | \$79,215 | \$18.00 | | | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation & Disposal Subtotal | | | | \$2,046,035 | | | | |
| 7 | Demobilize | | | | | | | | |
| | Replace Pavement in backyard (6" unreinforced slab on grade) | SF | 7,750 | \$4.26 | \$32,998 | \$3.49 | \$1.22 | | Means 2005., #18 02 0341, Environmental Remediation Cost Data - Unit Price |
| | Demobilize heavy equipment | LS | 1 | \$4,217 | \$4,217 | \$3,456 | 1.22 | 3 Trailer Trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | General area cleanup | ACRE | 4.8 | \$378 | \$1,815 | \$309.86 | 1.22 | Common areas and backyards | Means 2005., #17 04 0101, Environmental Remediation Cost Data - Unit Price |
| | Demobilize Subtotal | | | | \$39,030 | | | | |
| 8 | Land Use Controls | | | | | | | | |
| | Land Use Control Remedial Design | LS | | | \$35,000 | | | Assumed | |
| | Land Use Control Subtotal | | | | \$35,000 | | | | |
| | Total Direct Costs | | | | \$4,480,883 | | | | Unit prices obtained from Means 2005 were adjusted with a location multiplier of 1.22 |
| | Scope contingencies (10% of Subtotal Direct) | | | | \$448,088.26 | | | | |
| | Bid contingency for Disposal (10% of subtotal transport & disposal costs) | | | | \$204,604 | | | | |
| | Bid contingency for administrative (5% of direct cost) | | | | \$224,044 | | | | |
| | Insurance (5% of direct cost) | | | | \$224,044 | | | | |
| | TOTAL DIRECT COSTS | | | | \$5,581,663 | | | | |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Escalated Costs (2005 - 2006) | | | | \$5,760,276 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | INDIRECT COSTS | | | | | | | | |
| | Construction Management Staff | WK | 14 | | | | | Assume 1 wk mob., 12 wks excavating, 1 wk demob | |
| | Construction Manager | WK | 14 | \$ 1,947 | \$27,260 | \$1,596.00 | 1.22 | 8 hour days | Means 2005., #99 01 0102, Environmental Remediation Cost Data - Unit Price (Site Project Manager, average cost) |
| | Field Supervisor | WK | 14 | \$ 1,830 | \$25,620 | \$1,500.00 | 1.22 | 8 hour days | Means 2005., #99 01 0202, Environmental Remediation Cost Data - Unit Price (Superintendent, average cost) |
| | QC Engineer | WK | 14 | \$ 1,710 | \$23,946 | \$1,402.00 | 1.22 | 8 hour days | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average cost) |
| | Site H&S officer | WK | 14 | \$ 2,356 | \$32,986 | \$1,931.25 | 1.22 | 8 hour days | Means 2005., #99 01 0702, Environmental Remediation Cost Data - Unit Price (Safety Engineer, average cost) |
| | Construction Management Staff Subtotal | | | | \$109,812 | | | | |
| | Office Overhead (5% of construction management staff cost) | | | | \$5,491 | | | | |
| | General & Administration (5% of construction management staff cost) | | | | \$5,491 | | | | |
| | Home Office Expenses (5% of construction management staff cost) | | | | \$5,491 | | | | |
| | Total Construction Management | | | | \$126,283 | | | | |
| | Other Costs | | | | | | | | |
| | Design (10% of direct cost) | | | | \$558,166.26 | | | | |
| | Other Costs Subtotal | | | | \$558,166 | | | | |
| | TOTAL INDIRECT COSTS | | | | \$684,450 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$706,352 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | Total Direct & Indirect Costs | | | | \$6,466,628 | | | | |
| | Profit (10% of Subtotal Direct & Indirect Costs) | | | | \$646,662.78 | | | | |
| | TOTAL CAPITAL COSTS | | | | \$7,113,291 | | | | |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-----------|--|------|----------|-----------|--------------------|------------|---------------------|---|--|
| B. | ANNUAL & PERIODIC COSTS | | | | | | | | |
| 1 | Annual Costs | | | | | | | | |
| | Monitoring changes in post-closure land use and LUCs | WK | 1 | \$ 1,710 | \$1,710 | | | Contractor annual inspections for 1 week duration | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average cost) |
| | Excavator | CY | 97 | \$ 13.49 | \$1,307 | \$11.06 | 1.22 | Excavator, 5% of surface area to depth of 3-inches/annually | |
| | Seeding & Mulching | ACRE | 0.48 | 4,624 | \$2,220 | \$3,790.00 | 1.22 | seeding 10% of surface area/annually | |
| | Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) semiannually | EA | 29 | \$85.00 | \$2,444 | \$85.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 575 feet | Average vendor quote |
| | QC samples for Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) semiannually | EA | 14 | \$85.00 | \$1,190 | \$85.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote |
| | Subtotal Annual Costs | | | | \$8,871 | | | | |
| | Contingency (0%) | | | | \$0.00 | | | | |
| | Subtotal Annual Costs | | | | \$8,871 | | | | |
| | Technical Support & Project Management (20% of annual costs) | | | | \$1,774.19 | | | | |
| | Total Annual Costs | | | | \$10,645 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$10,986 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/jjensena/sfp/ca/calif.htm) |
| 2 | Periodic Costs | | | | | | | | |
| | Five Year Review Reports [every 5 years] | EA | 1 | \$12,000 | \$12,000 | | | Assumed | Assumed |
| | Subtotal Periodic Costs | | | | \$12,000 | | | | |
| | Technical Support & Project Management (20%) | | | | \$2,400.00 | | | | |
| | Subtotal Periodic Costs | | | | \$14,400 | | | | |

TABLE F-1: ALTERNATIVE 1 - COST OPINION - SOIL EXCAVATION TO 2 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|-------------|-----------------------|----------------------------|----------------------|-----------|---------------------|------------------------|--|
| C | PRESENT VALUE ANALYSIS | | | | | | | | |
| | | Year | Non-Discounted | Total Cost per Year | Present Value | | | Discount Factor | Period & Discount Rate Assumptions |
| | Capital Costs | 0 | \$ 7,113,291 | \$ 7,113,291 | \$ 7,113,291 | | | 1 | |
| | Annual O&M costs | 1-30 | \$ 329,574 | \$ 10,986 | \$ 165,096 | | | 5.20% | (1) 30 years until buildings are replaced with new structures, and (2) Discount rate: U.S. Government Treasury Bonds, January 2006, 30 year bond, 5.2% (http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html) |
| | Periodic Costs (every 5 years, year 5 through 30) | 5-30 | \$ 86,400 | \$ 14,400 | 36,967 | | | 5.20% | |
| | | | \$ 7,529,265 | | \$ 7,315,353 | | | | |
| D | TOTAL PRESENT VALUE OF ALTERNATIVE 1 | | | | \$ 7,315,353 | | | | |

Notes:

* In addition, soil excavation to 6 inches below the elevation of any utility, if present. The methane impacted area will also be excavated.

| | | | |
|--------|--|------|---------------------------------|
| bgs | Below ground surface | ICP | Inductively-Coupled Plasma |
| BOE | Board of Equalization | in | Inch |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes | LF | Linear feet |
| C.S | Confirmation sample | LS | Lump sum |
| CY | Cubic yard | LUC | Land use control |
| Dup | Duplicate | MO | Month |
| EA | Each | PAH | Polycyclic aromatic hydrocarbon |
| EPA | Environmental Protection Agency | PCB | Polychlorinated biphenyl |
| Equip | Equipment | QC | Quality control |
| ft | Feet | SF | Square feet |
| GC/FID | Gas Chromatograph(y)-Flame Ionization Detector | SWDA | Solid Waste Disposal Area |
| GVW | Gross vehicle weight | SY | Square yard |
| H&S | Health and safety | TAT | Turn around time |
| HiVols | High Volume | TPH | Total petroleum hydrocarbon |
| HR | Hour | WK | Week |

Reference:

R.S. Means Company, Inc. (Means). 2005 "Environmental Remediation Cost Data – Assemblies." 11th Annual Edition.

Means 2005. "Environmental Remediation Cost Data – Unit Cost." 11th Annual Edition.

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|--|------|----------|-----------|--------------------|-------------|---------------------|---|--|
| A | CAPITAL COSTS | | | | | | | | |
| | DIRECT COSTS | | | | | | | | |
| 1 | Mobilization | | | | | | | | |
| | Locate utilities | LS | 1 | \$25,000 | \$25,000 | \$25,000.00 | | | Assumed |
| | Mobilize heavy equipment (2 hydraulic excavators, 1 wheel loader) | LS | 1 | \$ 4,217 | \$4,217 | 3,456 | 1.22 | 3 trailer trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | Truck scale rental | MO | 4 | \$ 3,782 | \$15,128 | 3,100 | 1.22 | Estimated time for excavation | Means 2005., #33 01 0462, Environmental Remediation Cost Data - Unit Price |
| | Temporary Office 32' X 8' | MO | 4 | \$ 303 | \$1,213 | 249 | 1.22 | Estimated time for excavation | Means 2005., #99 04 0102 Environmental Remediation Cost Data - Assemblies |
| | HiVol Samplers (Continuous Monitoring and Recording of Air Flow) | EA | 3 | \$ 6,953 | \$20,858 | 5,699 | 1.22 | 3 HiVols | Means 2005., #33 02 1507, Environmental Remediation Cost Data - Unit Price |
| | Instrument Shelter | EA | 3 | \$ 1,091 | \$3,272 | 894 | 1.22 | 3 shelters for HiVols | Means 2005., #33 02 0338, Environmental Remediation Cost Data - Unit Price |
| | Baseline data (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 21 | \$ 870 | \$18,267 | 713 | 1.22 | 3 HiVols for 1 week to establish baseline | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, Pesticides/PCBs) |
| | Daily results of air monitoring from HiVols (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 455 | \$ 870 | \$395,792 | 713 | 1.22 | 3 HiVols for 13 weeks | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, Pesticides/PCBs) |
| | Health & safety program | LS | 1 | 75,000 | \$75,000 | \$75,000 | | | Assumed |
| | Mobilization Subtotal | | | | \$558,746 | | | | |
| 2 | Fencing | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | Remove wood fence | LF | 3,148 | \$ 2.42 | \$7,604 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 3,148 | \$ 18.00 | \$56,648 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA 1205/1207/1209/1211/1213 | | | | | | | | |
| | Remove wood fence | LF | 2,067 | \$ 2.42 | \$4,993 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 2,067 | \$ 18.00 | \$37,196 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|-----------|-----------|--------------------|-----------|---------------------|--|--|
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | Remove wood fence | LF | 1,535 | \$ 2.42 | \$3,708 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 1,535 | \$ 18.00 | \$27,622 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA Bigelow | | | | | | | | |
| | Remove wood fence | LF | 530 | \$ 2.42 | \$1,280 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 530 | \$ 18.00 | \$9,537 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Fencing Subtotal | | | | \$148,589 | | | | |
| 3 | Excavation to 2 ft bgs in Backyards, roadways, hardscape and Unpaved Common Areas | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | Number of Backyards | # | 13 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | Total hardscape and unpaved Area | SF | 123,483 | | | | | SF calculated using Microstation | |
| | Total hardscape Area | SF | 15,717 | | | | | SF calculated using Microstation | |
| | Total Volume | CY | 9,147 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 2.8 | \$ 94.83 | \$269 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 77 | \$ 75.12 | \$5,808 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish bituminous pavement in hardscape areas with air equipment | CY | 277 | \$ 47.45 | \$13,119 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 29 | \$ 86.78 | \$2,526 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 2,497,101 | \$ 0.01 | \$30,465 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 13 weeks | Means 2005., #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 6,860 | \$ 8.91 | \$61,126 | \$7.30 | 1.22 | Use for 75% of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1800 Site work and landscape Cost Data |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|--|
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 1,372 | \$ 2.35 | \$3,220 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 3800 Site work and landscape Cost Data |
| | Hand excavation for utilities and edge of buildings | CY | 645 | \$ 85.88 | \$55,390 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at level | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 9,147 | \$ 2.11 | \$19,278 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1200 Site work and landscape Cost Data |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 123,483 | 0.22 | \$27,117 | \$0.18 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 9,147 | \$ 39.04 | \$357,095 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 2.8 | 4,624 | \$13,107 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1207/1209/1211/1213 | | | | | | | | |
| | <i>Number of Backyards</i> | # | 18 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total hardscape and unpaved Area</i> | SF | 53,353 | | | | | SF calculated using Microstation | |
| | <i>Total hardscape Area</i> | SF | 2,816 | | | | | SF calculated using Microstation | |
| | <i>Total Volume</i> | CY | 3,952 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 1.2 | \$ 94.83 | \$116 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 117 | \$ 75.12 | \$8,804 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish bituminous in common areas of pavement with air equipment | CY | 50 | \$ 47.45 | \$2,351 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 5 | \$ 86.78 | \$453 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|-----------|-----------|--------------------|------------|---------------------|---|---|
| | Sprayed water dust suppressant | SY | 1,078,916 | \$ 0.01 | \$13,163 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 13 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 2,964 | \$ 8.91 | \$26,411 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 593 | \$ 2.35 | \$1,391 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 190 | \$ 85.88 | \$16,316 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at level | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 3,952 | \$ 2.11 | \$8,329 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 53,353 | 0.26 | \$13,669 | \$0.21 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 3,952 | \$ 39.04 | \$154,289 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 1.2 | 4,624 | \$5,663 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA Bigelow | | | | | | | | |
| | <i>Number of Backyards</i> | # | 12 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total hardscape and unpaved Area</i> | SF | 16,288 | | | | | SF calculated using Microstation | |
| | <i>Total hardscape Area</i> | SF | 0 | | | | | SF calculated using Microstation | |
| | <i>Total Volume</i> | CY | 1,207 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.3 | \$ 94.83 | \$27 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 28 | \$ 75.12 | \$2,087 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish bituminous pavement in common areas with air equipment | CY | 0 | \$ 47.45 | \$0 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 0 | \$ 86.78 | \$0 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 329,380 | \$ 0.01 | \$4,018 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 13 weeks | Means 2005., #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 905 | \$ 8.91 | \$8,063 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 181 | \$ 2.35 | \$425 | \$1.92 | 1.22 | Use for 15% of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 117 | \$ 85.88 | \$10,047 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at level | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 1,207 | \$ 2.11 | \$2,543 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 16,288 | 0.28 | \$4,570 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 1,207 | \$ 39.04 | \$47,102 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 0.4 | 4,624 | \$1,729 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | <i>Number of Backyards</i> | # | 19 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total hardscape and unpaved Area</i> | SF | 35,003 | | | | | SF calculated using Microstation | |
| | <i>Total hardscape Area</i> | SF | 433 | | | | | SF calculated using Microstation | |
| | <i>Total Volume</i> | CY | 2,593 | | | | | Assume 2 ft depth | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.6 | \$ 94.83 | \$57 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 44 | \$ 75.12 | \$3,304 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Demolish bituminous pavement in common areas with air equipment | CY | 8 | \$ 47.45 | \$361 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 1 | \$ 86.78 | \$70 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 707,838 | \$ 0.01 | \$8,636 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 13 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 1,945 | \$ 8.91 | \$17,327 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 389 | \$ 2.35 | \$913 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 109 | \$ 85.88 | \$9,360 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at level C | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 2,593 | \$ 2.11 | \$5,464 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 35,003 | 0.28 | \$9,822 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 2,593 | \$ 39.04 | \$101,223 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 0.8 | 4,624 | \$3,715 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Excavation of Common Areas Subtotal | | | | \$1,087,173 | | | | |
| 4 | Radiological Soil Screening | | | | | | | | |
| | Radiological Soil Plan | LS | 1 | 7,000.00 | \$7,000 | | | | Assumed |
| | Surface and subsurface Radiological Soil Screening | LS | 1 | 80,000.00 | \$80,000 | | | | |
| | Data Report | LS | 1 | 10,000.00 | \$10,000 | | | | |
| | Radiological soil screening | | | | \$97,000 | | | | |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|------------|--------------------|------------|---------------------|---|-------------------------------------|
| 5 | Confirmation Sampling | | | | | | | | |
| | Excavation wall length | LF | 7,543 | | | | | Length estimated using Microstation | |
| | Lead analysis (EPA 6010B) with 24 hour TAT | EA | 332 | \$42.00 | \$13,944 | \$42.00 | | Sidewall sample every 40 LF of wall length. Bottom sample every 1600 square feet | Average vendor quote with 24-hr TAT |
| | QC samples for lead analysis (EPA 6010B) with 24 hour TAT | EA | 83 | \$42.00 | \$3,486 | \$42.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every 20 C.S. | Average vendor quote with 24-hr TAT |
| | PAH soil analysis (modified EPA 8270) with 24 HR TAT | EA | 332 | \$469.20 | \$155,774 | \$469.20 | | Sidewall sample for every 40 feet wall length. Bottom sample every 1600 square feet | Average vendor quote with 24-hr TAT |
| | QC samples for PAH soil analysis (modified EPA 8270) with 24 hour TAT | EA | 83 | \$469.20 | \$38,944 | \$469.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every 20 C.S. | Average vendor quote with 24-hr TAT |
| | Pesticides (EPA 8081) /PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 332 | \$455.20 | \$151,126 | \$455.20 | | Sidewall sample every 40 LF of wall length. Bottom sample every 1600 square feet | Average vendor quote with 24-hr TAT |
| | QC samples for pesticides (EPA 8081)/PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 83 | \$455.20 | \$37,782 | \$455.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every 20 C.S. | Average vendor quote with 24-hr TAT |
| | Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 6 | \$1,530.00 | \$9,410 | \$1,530.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 246 feet using Microstation | Average vendor quote with 24-hr TAT |
| | QC samples for Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 2 | \$1,530.00 | \$3,060 | \$1,530.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every 20 C.S. | Average vendor quote with 24-hr TAT |
| | Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 14 | \$170.00 | \$2,444 | \$170.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 575 feet using Microstation | Average vendor quote with 24-hr TAT |
| | QC samples for Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 3 | \$170.00 | \$510 | \$170.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every 20 C.S. | Average vendor quote with 24-hr TAT |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|--|------|----------|------------|--------------------|-----------|---------------------|---|--|
| | Subcontracted sampling, one-man crew | DAY | 127 | \$ 738 | \$93,777 | \$605.00 | 1.22 | Assume 10 samples/day | Means 2005., #33 02 9907, Environmental Remediation Cost Data - Unit Price |
| | Surveying, 2-man crew | DAY | 127 | \$ 1,067 | \$135,587 | \$874.73 | 1.22 | Same as sampling crew | Means 2005., #99 24 1201, Environmental Remediation Cost Data - Unit Price |
| | Confirmation Sampling Subtotal | | | | \$645,843 | | | | |
| 6 | Transportation & Disposal of Excavated Material | | | | | | | | |
| | <i>Volume of demolished concrete and excavated waste</i> | CY | 17,959 | | | | | Total summation of excavated waste volume. | |
| | Waste Profile Sampling & Analysis | | 36 | \$1,136.40 | \$40,910 | | | Assume one sample every 500 CY | |
| | Kettleman Hills Facility Class I | | | | | | | | |
| | Disposal fee (includes Kings county and BOE tax) | TON | 27,478 | \$31.12 | \$855,107 | \$25.52 | | Assume 1.8 tons/cy and 85% of excavated waste | Quote from Waste Management for Kettleman Hills Facility |
| | Transportation via end dumps | TON | 27,478 | \$41.00 | \$1,126,587 | \$41.00 | | | Quote from Waste Management for Kettleman Hills Facility |
| | Altamont Landfill Class II | | | | | | | | |
| | Disposal fee | TON | 4,849 | \$29.72 | \$144,113 | \$12.50 | | Assume 1.8 tons/cy and 15% of excavated waste | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation via end dumps | TON | 4,849 | \$18.00 | \$87,282 | \$18.00 | | | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation & Disposal Subtotal | | | | \$2,253,999 | | | | |
| 7 | Demobilize | | | | | | | | |
| | Replace Pavement in backyard (6" unreinforced slab on grade) | SF | 7,750 | \$4.26 | \$32,998 | \$3.49 | \$1.22 | | Means 2005., #18 02 0341, Environmental Remediation Cost Data - Unit Price |
| | Replace Pavement (4" mesh reinforced slab on grade) | SF | 18,018 | \$4.48 | \$80,672 | \$3.67 | \$1.22 | | Means 2005., #18 02 0330, Environmental Remediation Cost Data - Unit Price |
| | Replace Sidewalk (standard 6" sidewalk with mesh, formed) | SF | 948 | \$4.61 | \$4,373 | \$3.78 | \$1.22 | | Means 2005., #18 03 0304, Environmental Remediation Cost Data - Unit Price |
| | Demobilize heavy equipment | LS | 1 | \$ 4,217 | \$4,217 | \$3,456 | 1.22 | 3 trailer trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | General area cleanup | ACRE | 5.2 | \$ 378 | \$1,980 | \$309.86 | 1.22 | Common areas and backyards | Means 2005., #17 04 0101, Environmental Remediation Cost Data - Unit Price |
| | Demobilize Subtotal | | | | \$124,240 | | | | |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| 8 | Land Use Controls | | | | | | | | |
| | Land Use Control Remedial Design | LS | | | \$35,000 | | | Assumed | |
| | Land Use Control Subtotal | | | | \$35,000 | | | | |
| | Total Direct Costs | | | | \$4,853,590 | | | | Unit prices obtained from Means 2005 were adjusted with a location multiplier of 1.22 |
| | Scope contingencies (10% of Subtotal Direct) | | | | \$485,359.04 | | | | |
| | Bid contingency for Disposal (10% of subtotal transport & disposal costs) | | | | \$225,400 | | | | |
| | Bid contingency for administrative (5% of direct cost) | | | | \$242,680 | | | | |
| | Insurance (5% of direct cost) | | | | \$242,680 | | | | |
| | TOTAL DIRECT COSTS | | | | \$6,049,708 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$6,243,299 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | INDIRECT COSTS | | | | | | | | |
| | Construction Management Staff | WK | 15 | | | | | Assume 1 wk mob., 13 wks excavating, 1 wk demob | |
| | Construction Manager | WK | 15 | \$ 1,947 | \$29,207 | \$1,596.00 | 1.22 | 8 hour days | Means 2005., #99 01 0102, Environmental Remediation Cost Data - Unit Price (Site Project Manager, average cost) |
| | Field Supervisor | WK | 15 | \$ 1,830 | \$27,450 | \$1,500.00 | 1.22 | 8 hour days | Means 2005., #99 01 0202, Environmental Remediation Cost Data - Unit Price (Superintendent, average cost) |
| | QC Engineer | WK | 15 | \$ 1,710 | \$25,657 | \$1,402.00 | 1.22 | 8 hour days | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average cost) |
| | Site H&S officer | WK | 15 | \$ 2,356 | \$35,342 | \$1,931.25 | 1.22 | 8 hour days | Means 2005., #99 01 0702, Environmental Remediation Cost Data - Unit Price (Safety Engineer, average cost) |
| | Construction Management Staff Subtotal | | | | \$117,655 | | | | |
| | Office Overhead (5% of construction management staff cost) | | | | \$5,883 | | | | |
| | General & Administration (5% of construction management staff cost) | | | | \$5,883 | | | | |
| | Home Office Expenses (5% of construction management staff cost) | | | | \$5,883 | | | | |
| | Total Construction Management Costs | | | | \$135,304 | | | | |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-----------|--|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Other Costs | | | | | | | | |
| | Design (10% of direct cost) | | | | \$604,970.83 | | | | |
| | Other Costs Subtotal | | | | \$604,971 | | | | |
| | TOTAL INDIRECT COSTS | | | | \$740,274 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$763,963 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/jjensena/sfp/ca/calif.htm) |
| | Total Direct & Indirect Costs | | | | \$7,007,262 | | | | |
| | Profit (10% of Subtotal Direct & Indirect Costs) | | | | \$700,726.21 | | | | |
| | TOTAL CAPITAL COSTS | | | | \$7,707,988 | | | | |
| B. | ANNUAL & PERIODIC COSTS | | | | | | | | |
| 1 | Annual Costs | | | | | | | | |
| | Monitoring changes in post-closure land use and LUCs | WK | 1 | \$ 1,710 | \$1,710 | | | Contractor annual inspections for 1 week duration | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average cost) |
| | Excavator | CY | 106 | \$ 13.49 | \$1,425 | \$11.06 | 1.22 | Excavator, 5% of surface area to depth of 3-inches/annually | |
| | Seeding & Mulching | ACRE | 0.52 | 4,624 | \$2,422 | \$3,790.00 | 1.22 | seeding 10% of surface area/annually | |
| | Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) semiannually | EA | 29 | \$85.00 | \$2,444 | \$85.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 575 feet using Microstation | Average vendor quote |
| | QC samples for Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) semiannually | EA | 14 | \$85.00 | \$1,190 | \$85.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every 20 C.S. | Average vendor quote |
| | Subtotal Annual Costs | | | | \$9,191 | | | | |
| | Contingency (0%) | | | | \$0.00 | | | | |
| | Subtotal Annual Costs | | | | \$9,191 | | | | |
| | Technical Support & Project Management (20% of annual costs) | | | | \$1,838.16 | | | | |
| | Total Annual Costs | | | | \$11,029 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$11,382 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/jjensena/sfp/ca/calif.htm) |

TABLE F-2: ALTERNATIVE 2 - COST OPINION - SOIL EXCAVATION TO 2 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|---------------------------|---------------------|---------------------|-----------|---------------------|----------------------|--|
| 2 | Periodic Costs | | | | | | | | |
| | Five Year Review Reports [every 5 years] | EA | 1 | \$12,000 | \$12,000 | | | Assumed | Assumed |
| | Subtotal Periodic Costs | | | | \$12,000 | | | | |
| | Technical Support & Project Management (20%) | | | | \$2,400.00 | | | | |
| | Subtotal Periodic Costs | | | | \$14,400 | | | | |
| C | PRESENT VALUE ANALYSIS | | | | | | | | |
| | | Year | Total Cost Non-Discounted | Total Cost per Year | Present Value | | | Discount Factor | Period & Discount Rate Assumptions |
| | Capital Costs | 0 | \$ 7,707,988 | \$ 7,707,988 | \$ 7,707,988 | | | 1 | |
| | Annual O&M costs | 1-30 | \$ 341,456 | \$ 11,382 | \$ 171,048 | | | 5.20% | (1) 30 years until buildings are replaced with new structures, and (2) Discount rate: U.S. Government Treasury Bonds, January 2006, 30 year bond, 5.2% (http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html) |
| | Periodic Costs (every 5 years, year 5 through 30) | 5-30 | \$ 86,400 | \$ 14,400 | 36,967 | | | 5.20% | |
| | | | \$ 8,135,844 | | \$ 7,916,003 | | | | |
| D | TOTAL PRESENT VALUE OF ALTERNATIVE 2 | | | | \$ 7,916,003 | | | | |

Notes:

* In addition, soil excavation to 6 inches below the elevation of any utility, if present. The methane impacted area will also be excavated.

- | | | | |
|--------|--|------|---------------------------------|
| bgs | Below ground surface | ICP | Inductively-Coupled Plasma |
| BOE | Board of Equalization | in | Inch |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes | LF | Linear feet |
| C.S | Confirmation sample | LS | Lump sum |
| CY | Cubic yard | LUC | Land use control |
| Dup | Duplicate | MO | Month |
| EA | Each | PAH | Polycyclic aromatic hydrocarbon |
| EPA | Environmental Protection Agency | PCB | Polychlorinated biphenyl |
| Equip | Equipment | QC | Quality control |
| ft | Feet | SF | Square feet |
| GC/FID | Gas Chromatograph(y)-Flame Ionization Detector | SWDA | Solid Waste Disposal Area |
| GVW | Gross vehicle weight | SY | Square yard |
| H&S | Health and safety | TAT | Turn around time |
| HiVols | High Volume | TPH | Total petroleum hydrocarbon |
| HR | Hour | WK | Week |

Reference:

R.S. Means Company, Inc. (Means). 2005 "Environmental Remediation Cost Data – Assemblies." 11th Annual Edition.

Means 2005. "Environmental Remediation Cost Data – Unit Cost." 11th Annual Edition.

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|--|------|----------|-----------|--------------------|-------------|---------------------|---|--|
| A | CAPITAL COSTS | | | | | | | | |
| | DIRECT COSTS | | | | | | | | |
| 1 | Mobilization | | | | | | | | |
| | Locate utilities | LS | 1 | \$25,000 | \$25,000 | \$25,000.00 | | | Assumed |
| | Mobilize heavy equipment (2 hydraulic excavators, 1 wheel loader) | LS | 1 | \$ 4,217 | \$4,217 | 3,456 | 1.22 | 3 trailer trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | Truck scale rental | MO | 6 | \$ 3,782 | \$22,692 | 3,100 | 1.22 | Estimated time for excavation | Means 2005., #33 01 0462, Environmental Remediation Cost Data - Unit Price |
| | Temporary Office 32' X 8' | MO | 6 | \$ 303 | \$1,819 | 249 | 1.22 | Estimated time for excavation | Means 2005., #99 04 0102 Environmental Remediation Cost Data |
| | HiVol Samplers (Continuous Monitoring and Recording of Air Flow) | EA | 3 | \$ 6,953 | \$20,858 | 5,699 | 1.22 | 3 HiVols | Means 2005., #33 02 1507, Environmental Remediation Cost Data - Unit Price |
| | Instrument Shelter | EA | 3 | \$ 1,091 | \$3,272 | 894 | 1.22 | 3 shelters for HiVols | Means 2005., #33 02 0338, Environmental Remediation Cost Data - Unit Price |
| | Baseline data (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 21 | \$ 870 | \$18,267 | 713 | 1.22 | 3 HiVols for 1 week to establish baseline | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, Pesticides/PCBs) |
| | Daily results of air monitoring from HiVols (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 805 | \$ 870 | \$700,247 | 713 | 1.22 | 3 HiVols for 23 weeks | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, |
| | Health & safety program | LS | 1 | 75,000 | \$75,000 | \$75,000 | | | Assumed |
| | Mobilization Subtotal | | | | \$871,372 | | | | |
| 2 | Fencing | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | Remove wood fence | LF | 3,148 | \$ 2.42 | \$7,604 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 3,148 | \$ 18.00 | \$56,648 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA 1205/1207/1209/1211/1213 | | | | | | | | |
| | Remove wood fence | LF | 2,067 | \$ 2.42 | \$4,993 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 2,067 | \$ 18.00 | \$37,196 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|-----------|-----------|--------------------|-----------|---------------------|---|--|
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | Remove wood fence | LF | 1,535 | \$ 2.42 | \$3,708 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 1,535 | \$ 18.00 | \$27,622 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA Bigelow | | | | | | | | |
| | Remove wood fence | LF | 530 | \$ 2.42 | \$1,280 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 530 | \$ 18.00 | \$9,537 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Fencing Subtotal | | | | \$148,589 | | | | |
| 3 | Excavation to 4 ft bgs in Backyards, roadways and Unpaved Common Areas | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | Number of Backyards | # | 13 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | Total Backyard, Roadway and common Area | SF | 107,766 | | | | | SF calculated using Microstation | |
| | Total Backyard roadway and Common Area Volume | CY | 15,965 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 2.5 | \$ 94.83 | \$235 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 77 | \$ 75.12 | \$5,808 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 3,855,628 | \$ 0.01 | \$47,039 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 23 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 11,974 | \$ 8.91 | \$106,692 | \$7.30 | 1.22 | Use for 75% of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1800 Site work and landscape |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 2,395 | \$ 2.35 | \$5,621 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 3800 Site work and landscape |
| | Hand excavation for utilities and edge of buildings | CY | 443 | \$ 85.88 | \$38,043 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|-----------|-----------|--------------------|------------|---------------------|---|--|
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 15,965 | \$ 2.11 | \$33,648 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1200 Site work and landscape |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 107,766 | 0.22 | \$23,665 | \$0.18 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 15,965 | \$ 39.04 | \$623,287 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 2.5 | 4,624 | \$11,439 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1207/1209/1211/1213 | | | | | | | | |
| | <i>Number of Backyards</i> | # | 18 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total Backyard, Roadway and common Area</i> | SF | 50,536 | | | | | SF calculated using Microstation | |
| | <i>Total Backyard roadway and Common Area Volume</i> | CY | 7,487 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 1.2 | \$ 94.83 | \$110 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 117 | \$ 75.12 | \$8,804 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 1,808,066 | \$ 0.01 | \$22,058 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 23 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 5,615 | \$ 8.91 | \$50,032 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 1,123 | \$ 2.35 | \$2,636 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 141 | \$ 85.88 | \$12,108 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 7,487 | \$ 2.11 | \$15,779 | \$1.73 | 1.22 | Use entire excavation time | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 50,536 | 0.26 | \$12,947 | \$0.21 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 7,487 | \$ 39.04 | \$292,285 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 1.2 | 4,624 | \$5,364 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA Bigelow | | | | | | | | |
| | Number of Backyards | # | 12 | | | | | Counted using ArcView, | Micro station measured average size of backyard to be 500 square feet |
| | Total Backyard, Roadway and common Area | SF | 16,288 | | | | | SF calculated using Microstation | |
| | Total Backyard roadway and Common Area Volume | CY | 2,413 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.3 | \$ 94.83 | \$27 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 28 | \$ 75.12 | \$2,087 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 582,748 | \$ 0.01 | \$7,110 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 23 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 1,810 | \$ 8.91 | \$16,126 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 362 | \$ 2.35 | \$850 | \$1.92 | 1.22 | Use for 15% of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 114 | \$ 85.88 | \$9,790 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at level C | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 2,413 | \$ 2.11 | \$5,086 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 16,288 | 0.28 | \$4,570 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc) |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|-----------|-----------|--------------------|------------|---------------------|---|---|
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 2,413 | \$ 39.04 | \$94,205 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 0.4 | 4,624 | \$1,729 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | Number of Backyards | # | 19 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | Total Backyard, Roadway and common Area | SF | 34,570 | | | | | SF calculated using Microstation | |
| | Total Backyard roadway and Common Area Volume | CY | 5,121 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.6 | \$ 94.83 | \$56 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 44 | \$ 75.12 | \$3,304 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are 6" thick | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 1,236,838 | \$ 0.01 | \$15,089 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 23 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 3,841 | \$ 8.91 | \$34,225 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 768 | \$ 2.35 | \$1,803 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 108 | \$ 85.88 | \$9,275 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 5,121 | \$ 2.11 | \$10,794 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 34,570 | 0.28 | \$9,700 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 5,121 | \$ 39.04 | \$199,943 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 0.8 | 4,624 | \$3,670 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|-----------|--------------|------------|--------------------|------------|---------------------|---|-------------------------------------|
| | Excavation of Common Areas | | | | \$1,753,872 | | | | |
| 4 | Radiological Soil Screening | | | | | | | | |
| | Radiological Soil Plan | LS | 1 | 7,000.00 | \$7,000 | | | | Assumed |
| | Surface and subsurface Radiological Soil Screening | LS | 1 | 80,000.00 | \$80,000 | | | | |
| | Data Report | LS | 1 | 10,000.00 | \$10,000 | | | | |
| | Radiological soil screening | | | | \$97,000 | | | | |
| 5 | Confirmation Sampling | | | | | | | | |
| | <i>Excavation wall length</i> | <i>LF</i> | <i>7,543</i> | | | | | Length estimated using Microstation | |
| | Lead analysis (EPA 6010B) with 24 hour TAT | EA | 320 | \$42.00 | \$13,440 | \$42.00 | | Sidewall sample every 40 LF of wall length. Bottom sample every | Average vendor quote with 24-hr TAT |
| | QC samples for lead analysis (EPA 6010B) with 24 hour TAT | EA | 80 | \$42.00 | \$3,360 | \$42.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | PAH soil analysis (modified EPA 8270) with 24 HR TAT | EA | 320 | \$469.20 | \$150,144 | \$469.20 | | Sidewall sample for every 40 feet wall length. Bottom sample every | Average vendor quote with 24-hr TAT |
| | QC samples for PAH soil analysis (modified EPA 8270) with 24 hour TAT | EA | 80 | \$469.20 | \$37,536 | \$469.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Pesticides (EPA 8081) /PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 320 | \$455.20 | \$145,664 | \$455.20 | | Sidewall sample every 40 LF of wall length. Bottom sample every | Average vendor quote with 24-hr TAT |
| | QC samples for pesticides (EPA 8081)/PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 80 | \$455.20 | \$36,416 | \$455.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 6 | \$1,530.00 | \$9,410 | \$1,530.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 246 feet | Average vendor quote with 24-hr TAT |
| | QC samples for Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 2 | \$1,530.00 | \$3,060 | \$1,530.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 14 | \$170.00 | \$2,444 | \$170.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 575 feet using microstation | Average vendor quote with 24-hr TAT |
| | QC samples for Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 3 | \$170.00 | \$510 | \$170.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|--|------|----------|------------|--------------------|-----------|---------------------|---|--|
| | Subcontracted sampling, one-man crew | DAY | 123 | \$ 738 | \$90,456 | \$605.00 | 1.22 | Assume 10 samples/day | Means 2005., #33 02 9907, Environmental Remediation Cost Data - Unit Price |
| | Surveying, 2-man crew | DAY | 123 | \$ 1,067 | \$130,784 | \$874.73 | 1.22 | Same as sampling crew | Means 2005., #99 24 1201, Environmental Remediation Cost Data - Unit Price |
| | Confirmation Sampling Subtotal | | | | \$623,224 | | | | |
| 6 | Transportation & Disposal of Excavated Material | | | | | | | | |
| | <i>Volume of demolished concrete and excavated waste</i> | CY | 30,987 | | | | | Total summation of excavated waste volume. | |
| | Waste Profile Sampling & Analysis | | 62 | \$1,136.40 | \$70,457 | | | Assume one sample every 500 CY | |
| | Kettleman Hills Facility Class I | | | | | | | | |
| | Disposal fee (includes Kings county and BOE tax) | TON | 47,410 | \$31.12 | \$1,475,387 | \$25.52 | | Assume 1.8 tons/cy and 85% of excavated waste | Quote from Waste Management for Kettleman Hills Facility |
| | Transportation via end dumps | TON | 47,410 | \$31.50 | \$1,493,402 | \$30.50 | \$ 1.00 | 23 ton minimum | Quote from Waste Management for Kettleman Hills Facility |
| | Altamont Landfill Class II | | | | | | | | |
| | Disposal fee | TON | 8,366 | \$29.72 | \$248,649 | \$12.50 | | Assume 1.8 tons/cy and 15% of excavated waste | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation via end dumps | TON | 8,366 | \$13.25 | \$110,855 | \$13.00 | \$0.25 | 23 ton minimum, 3 trips/day | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation & Disposal | | | | \$3,398,750 | | | | |
| 7 | Demobilize | | | | | | | | |
| | Replace Pavement in backyard (6" unreinforced slab on grade) | SF | 7,750 | \$4.26 | \$32,998 | \$3.49 | \$1.22 | | Means 2005., #18 02 0341, Environmental Remediation Cost Data - Unit Price |
| | Demobilize heavy equipment | LS | 1 | \$ 4,217 | \$4,217 | \$3,456 | 1.22 | 3 Trailer Trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | General area cleanup | ACRE | 4.8 | \$ 378 | \$1,815 | \$309.86 | 1.22 | Common areas and backyards | Means 2005., #17 04 0101, Environmental Remediation Cost Data - Unit Price |
| | Demobilize Subtotal | | | | \$39,030 | | | | |
| 8 | Land Use Controls | | | | | | | | |
| | Land Use Control Remedial Design | LS | | | \$35,000 | | | Assumed | |
| | Land Use Control Subtotal | | | | \$35,000 | | | | |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|--|
| | Total Direct Costs | | | | \$6,966,837 | | | | Unit prices obtained from Means 2005 were adjusted with a location multiplier of 1.22 |
| | Scope contingencies (10% of Subtotal Direct) | | | | \$696,683.66 | | | | |
| | Bid contingency for Disposal (10% of subtotal transport & disposal costs) | | | | \$339,875 | | | | |
| | Bid contingency for administrative (5% of direct cost) | | | | \$348,342 | | | | |
| | Insurance (5% of direct cost) | | | | \$348,342 | | | | |
| | TOTAL DIRECT COSTS | | | | \$8,700,079 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$8,978,482 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | INDIRECT COSTS | | | | | | | | |
| | Construction Management Staff | WK | 25 | | | | | Assume 1 wk mob., 23 wks excavating, 1 wk demob | |
| | Construction Manager | WK | 25 | \$ 1,947 | \$48,678 | \$1,596.00 | 1.22 | 8 hour days | Means 2005., #99 01 0102, Environmental Remediation Cost Data - Unit Price (Site Project Manager, average cost) |
| | Field Supervisor | WK | 25 | \$ 1,830 | \$45,750 | \$1,500.00 | 1.22 | 8 hour days | Means 2005., #99 01 0202, Environmental Remediation Cost Data - Unit Price (Superintendent, average |
| | QC Engineer | WK | 25 | \$ 1,710 | \$42,761 | \$1,402.00 | 1.22 | 8 hour days | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average |
| | Site H&S officer | WK | 25 | \$ 2,356 | \$58,903 | \$1,931.25 | 1.22 | 8 hour days | Means 2005., #99 01 0702, Environmental Remediation Cost Data - Unit Price (Safety Engineer, average |
| | Construction Management Staff Subtotal | | | | \$196,092 | | | | |
| | Office Overhead (5% of construction management staff cost) | | | | \$9,805 | | | | |
| | General & Administration (5% of construction management staff cost) | | | | \$9,805 | | | | |
| | Home Office Expenses (5% of construction management staff cost) | | | | \$9,805 | | | | |
| | Total Construction Management | | | | \$225,506 | | | | |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-----------|--|------|----------|-----------|---------------------|------------|---------------------|--|---|
| | Other Costs | | | | | | | | |
| | Design (10% of direct cost) | | | | \$870,007.90 | | | | |
| | Other Costs Subtotal | | | | \$870,008 | | | | |
| | TOTAL INDIRECT COSTS | | | | \$1,095,514 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$1,130,570 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | Total Direct & Indirect Costs | | | | \$10,109,052 | | | | |
| | Profit (10% of Subtotal Direct & Indirect Costs) | | | | \$1,010,905.18 | | | | |
| | TOTAL CAPITAL COSTS | | | | \$11,119,957 | | | | |
| B. | ANNUAL & PERIODIC COSTS | | | | | | | | |
| 1 | Annual Costs | | | | | | | | |
| | Monitoring changes in post-closure land use and LUCs | WK | 1 | \$ 1,710 | \$1,710 | | | Contractor annual inspections for 1 week duration | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average |
| | Excavator | CY | 97 | \$ 13.49 | \$1,307 | \$11.06 | 1.22 | Excavator, 5% of surface area to depth of 3-inches/ annually | |
| | Seeding & Mulching | ACRE | 0.48 | 4,624 | \$2,220 | \$3,790.00 | 1.22 | seeding 10% of surface area/annually | |
| | Subtotal Annual Costs | | | | \$5,237 | | | | |
| | Contingency (0%) | | | | \$0.00 | | | | |
| | Subtotal Annual Costs | | | | \$5,237 | | | | |
| | Technical Support & Project Management (20% of annual costs) | | | | \$1,047.44 | | | | |
| | Total Annual Costs | | | | \$6,285 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$6,486 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| 2 | Periodic Costs | | | | | | | | |
| | Five Year Review Reports [every 5 years] | EA | 1 | \$12,000 | \$12,000 | | | Assumed | Assumed |
| | Contingency (0%) | | | | \$0.00 | | | | |
| | Subtotal Periodic Costs | | | | \$12,000 | | | | |
| | Technical Support & Project Management (20%) | | | | \$2,400.00 | | | | |
| | Subtotal Periodic Costs | | | | \$14,400 | | | | |

TABLE F-3: ALTERNATIVE 3 - COST OPINION - SOIL EXCAVATION TO 4 FEET (EXCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|-------------|----------------------------------|----------------------------|----------------------|-----------|---------------------|------------------------|---|
| C | PRESENT VALUE ANALYSIS | | | | | | | | |
| | | Year | Total Cost Non-Discounted | Total Cost per Year | Present Value | | | Discount Factor | Period & Discount Rate Assumptions |
| | Capital Costs | 0 | \$ 11,119,957 | \$ 11,119,957 | \$ 11,119,957 | | | 1 | |
| | Annual O&M costs | 1-30 | \$ 194,573 | \$ 6,486 | \$ 97,469 | | | 5.20% | (1) 30 years until buildings are replaced with new structures, and (2) Discount rate: U.S. Government Treasury Bonds, January 2006, 30 year bond, 5.2% (http://www.whitehouse.gov/omb/circul |
| | Periodic Costs (every 5 years, year 5 through 30) | 5-30 | \$ 86,400 | \$ 14,400 | 36,967 | | | 5.20% | |
| | | | \$ 11,400,930 | | \$ 11,254,392 | | | | |
| D | TOTAL PRESENT VALUE OF ALTERNATIVE 3 | | | | \$ 11,254,392 | | | | |

Notes:

* In addition, soil excavation to 6 inches below the elevation of any utility, if present. The methane impacted area will also be excavated.

| | | | |
|--------|--|------|---------------------------------|
| bgs | Below ground surface | ICP | Inductively-Coupled Plasma |
| BOE | Board of Equalization | in | Inch |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes | LF | Linear feet |
| C.S | Confirmation sample | LS | Lump sum |
| CY | Cubic yard | LUC | Land use control |
| Dup | Duplicate | MO | Month |
| EA | Each | PAH | Polycyclic aromatic hydrocarbon |
| EPA | Environmental Protection Agency | PCB | Polychlorinated biphenyl |
| Equip | Equipment | QC | Quality control |
| ft | Feet | SF | Square feet |
| GC/FID | Gas Chromatograph(y)-Flame Ionization Detector | SWDA | Solid Waste Disposal Area |
| GVW | Gross vehicle weight | SY | Square yard |
| H&S | Health and safety | TAT | Turn around time |
| HiVols | High Volume | TPH | Total petroleum hydrocarbon |
| HR | Hour | WK | Week |

Reference:

R.S. Means Company, Inc. (Means). 2005 "Environmental Remediation Cost Data – Assemblies." 11th Annual Edition.

Means 2005. "Environmental Remediation Cost Data – Unit Cost." 11th Annual Edition.

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|--|------|----------|-----------|--------------------|-------------|---------------------|---|--|
| A | CAPITAL COSTS | | | | | | | | |
| | DIRECT COSTS | | | | | | | | |
| 1 | Mobilization | | | | | | | | |
| | Locate utilities | LS | 1 | \$25,000 | \$25,000 | \$25,000.00 | | | Assumed |
| | Mobilize heavy equipment (2 hydraulic excavators, 1 wheel loader) | LS | 1 | \$ 4,217 | \$4,217 | 3,456 | 1.22 | 3 trailer trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | Temporary Office 32' X 8' | MO | 7 | \$ 303 | \$2,122 | 249 | 1.22 | Estimated time for excavation | Means 2005., #99 04 0102 Environmental Remediation Cost Data - Assemblies |
| | Truck scale rental | MO | 7 | \$ 3,782 | \$26,474 | 3,100 | 1.22 | Estimated time for excavation | Means 2005., #33 01 0462, Environmental Remediation Cost Data - Unit Price |
| | HiVol Samplers (Continuous Monitoring and Recording of Air Flow) | EA | 3 | \$ 6,953 | \$20,858 | 5,699 | 1.22 | 3 HiVols | Means 2005., #33 02 1507, Environmental Remediation Cost Data - Unit Price |
| | Instrument Shelter | EA | 3 | \$ 1,091 | \$3,272 | 894 | 1.22 | 3 shelters for HiVols | Means 2005., #33 02 0338, Environmental Remediation Cost Data - Unit Price |
| | Baseline data (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 21 | \$ 870 | \$18,267 | 713 | 1.22 | 3 HiVols for 1 week to establish baseline | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, Pesticides/PCBs) |
| | Daily results of air monitoring from HiVols (lead, PAHs, pesticides, PCBs, methane, dioxins) | Day | 875 | \$ 870 | \$761,138 | 713 | 1.22 | 3 HiVols for 25 weeks | Means 2005., #33 02 1813, #33 02 1812 and #33 02 1810 Environmental Remediation Cost Data - Unit Price (Metals by ICP, PAHs, Pesticides/PCBs) |
| | Health & safety program | LS | 1 | 75,000 | \$75,000 | \$75,000 | | | Assumed |
| | Mobilization Subtotal | | | | \$936,348 | | | | |
| 2 | Fencing | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | Remove wood fence | LF | 3,148 | \$ 2.42 | \$7,604 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 3,148 | \$ 18.00 | \$56,648 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA 1205/1207/1209/1211/1213 | | | | | | | | |
| | Remove wood fence | LF | 2,067 | \$ 2.42 | \$4,993 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 2,067 | \$ 18.00 | \$37,196 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|-----------|-----------|--------------------|-----------|---------------------|---|--|
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | Remove wood fence | LF | 1,535 | \$ 2.42 | \$3,708 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 1,535 | \$ 18.00 | \$27,622 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Identified SWDA Bigelow | | | | | | | | |
| | Remove wood fence | LF | 530 | \$ 2.42 | \$1,280 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Environmental Remediation Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 530 | \$ 18.00 | \$9,537 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Environmental Remediation Cost Data - Assemblies |
| | Fencing Subtotal | | | | \$148,589 | | | | |
| 3 | Excavation to 4 ft bgs in Backyards, roadways, hardscape and Unpaved Common Areas | | | | | | | | |
| | Identified SWDA A & B | | | | | | | | |
| | <i>Number of Backyards</i> | # | 13 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total hardscape and unpaved Area</i> | SF | 123,483 | | | | | SF calculated using Microstation | |
| | <i>Total hardscape Area</i> | SF | 15,717 | | | | | SF calculated using Microstation | |
| | <i>Total Volume</i> | CY | 18,294 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 2.8 | \$ 94.83 | \$269 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 77 | \$ 75.12 | \$5,808 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish bituminous pavement in common areas with air equipment | CY | 277 | \$ 47.45 | \$13,119 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 29 | \$ 86.78 | \$2,526 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 4,802,117 | \$ 0.01 | \$58,586 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 25 weeks | Means 2005., #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|--|
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 13,720 | \$ 8.91 | \$122,252 | \$7.30 | 1.22 | Use for 75% of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1800 Site work and landscape Cost Data |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 2,744 | \$ 2.35 | \$6,441 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 3800 Site work and landscape Cost Data |
| | Hand excavation for utilities and edge of buildings | CY | 645 | \$ 85.88 | \$55,390 | \$70.39 | 1.22 | LF estimated using microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 18,294 | \$ 2.11 | \$38,555 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies and Means 2006 #02315 424 1200 Site work and landscape Cost Data |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 123,483 | 0.22 | \$27,117 | \$0.18 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 18,294 | \$ 39.04 | \$714,189 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 2.8 | 4,624 | \$13,107 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1207/1209/1211/1213 | | | | | | | | |
| | <i>Number of Backyards</i> | # | 18 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total hardscape and unpaved Area</i> | SF | 53,353 | | | | | SF calculated using Microstation | |
| | <i>Total hardscape Area</i> | SF | 2,816 | | | | | SF calculated using Microstation | |
| | <i>Total Volume</i> | CY | 7,904 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 1.2 | \$ 94.83 | \$116 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 117 | \$ 75.12 | \$8,804 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish bituminous in common areas of pavement with air equipment | CY | 50 | \$ 47.45 | \$2,351 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|-----------|-----------|--------------------|------------|---------------------|---|---|
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 5 | \$ 86.78 | \$453 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 2,074,839 | \$ 0.01 | \$25,313 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 25 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 5,928 | \$ 8.91 | \$52,821 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 1,186 | \$ 2.35 | \$2,783 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 190 | \$ 85.88 | \$16,316 | \$70.39 | 1.22 | LF estimated using microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 7,904 | \$ 2.11 | \$16,658 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 53,353 | 0.26 | \$13,669 | \$0.21 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 7,904 | \$ 39.04 | \$308,578 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering Services) |
| | Seeding, vegetative cover | ACRE | 1.2 | 4,624 | \$5,663 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA Bigelow | | | | | | | | |
| | <i>Number of Backyards</i> | # | 12 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | <i>Total hardscape and unpaved Area</i> | SF | 16,288 | | | | | SF calculated using Microstation | |
| | <i>Total hardscape Area</i> | SF | 0 | | | | | SF calculated using Microstation | |
| | <i>Total Volume</i> | CY | 2,413 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.3 | \$ 94.83 | \$27 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 28 | \$ 75.12 | \$2,087 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Demolish bituminous pavement in common areas with air equipment | CY | 0 | \$ 47.45 | \$0 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 0 | \$ 86.78 | \$0 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 633,422 | \$ 0.01 | \$7,728 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 25 weeks | Means 2005, #33 08 0585, Environmental Remediation Cost Data - Unit Price (Watering by truck) |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 1,810 | \$ 8.91 | \$16,126 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 362 | \$ 2.35 | \$850 | \$1.92 | 1.22 | Use for 15% of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 117 | \$ 85.88 | \$10,047 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 2,413 | \$ 2.11 | \$5,086 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 16,288 | 0.28 | \$4,570 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 2,413 | \$ 39.04 | \$94,205 | \$32.00 | 1.22 | | Vendor Quote (Ryan Engineering services) |
| | Seeding, vegetative cover | ACRE | 0.4 | 4,624 | \$1,729 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Identified SWDA 1231/1233/1235/1237 | | | | | | | | |
| | Number of Backyards | # | 19 | | | | | Counted using ArcView, | Microstation measured average size of backyard to be 500 square feet |
| | Total hardscape and unpaved Area | SF | 35,003 | | | | | SF calculated using Microstation | |
| | Total hardscape Area | SF | 433 | | | | | SF calculated using Microstation | |
| | Total Volume | CY | 5,186 | | | | | SF calculated using Microstation | |
| | Clearing vegetation (light brush without grub) | ACRE | 0.6 | \$ 94.83 | \$57 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Environmental Remediation Cost Data - Assemblies |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|-----------|-----------|--------------------|------------|---------------------|---|--|
| | Demolish existing backyard pavement and roadways (unreinforced concrete, 6" thick) with air equipment | CY | 44 | \$ 75.12 | \$3,304 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area. Assume roadways are | Means 2005., #17 02 0205, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish bituminous pavement in common areas with air equipment | CY | 8 | \$ 47.45 | \$361 | \$38.89 | 1.22 | Assume pavement is 6" thick and covers 90% of paved areas | Means 2005., #17 02 0203, Level D, Environmental Remediation Cost Data - Assemblies |
| | Demolish Mesh Reinforced Concrete Sidewalk | CY | 1 | \$ 86.78 | \$70 | \$71.13 | 1.22 | Assume sidewalk is 1 foot thick and covers 10% of paved areas | Means 2005., #17 02 0217, Level D, Environmental Remediation Cost Data - Assemblies |
| | Sprayed water dust suppressant | SY | 1,361,228 | \$ 0.01 | \$16,607 | \$0.01 | 1.22 | Assume 2 times/day, 7 days/week, for 25 | Means 2005., #33 08 0585, Environmental Remediation Cost Data - Unit Price |
| | Excavate using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 3,889 | \$ 8.91 | \$34,654 | \$7.30 | 1.22 | Use for 75 % of excavation | Means 2005., #17 03 0433, Level D, Environmental Remediation Cost Data - Assemblies |
| | Excavate using crawler-mounted, 1.0 CY, 215 hydraulic excavator @ 59 CY/HR | CY | 778 | \$ 2.35 | \$1,826 | \$1.92 | 1.22 | Use for 15 % of excavation | Means 2005., #17 03 0230, Level D, Environmental Remediation Cost Data - Assemblies |
| | Hand excavation for utilities and edge of buildings | CY | 109 | \$ 85.88 | \$9,360 | \$70.39 | 1.22 | LF estimated using Microstation. 1 foot corridor assumed for all utilities. Excavation at | Means 2005., #17 03 0211, Level C, Environmental Remediation Cost Data - Assemblies (Normal soil) |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 5,186 | \$ 2.11 | \$10,929 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Environmental Remediation Cost Data - Assemblies |
| | Decontaminate heavy equipment | EA | 4 | \$ 427 | \$1,709 | \$350.19 | 1.22 | 2 hydraulic excavators, 2 track loaders | Means 2005., #33 17 0803, Level D, Environmental Remediation Cost Data - Assemblies |
| | Place marker fabric at bottom of excavation | SF | 35,003 | 0.28 | \$9,822 | \$0.23 | 1.22 | | Vendor Quote (Sierra Geosynthetic Services, Inc.) |
| | Backfill with off-site unclassified fill, 6-in lifts (includes delivery, spreading, and compaction) | CY | 5,186 | \$ 39.04 | \$202,447 | \$32.00 | 1.22 | | Purchase (\$10/cy)+Means 2005., #17 03 0423, Level D, Environmental Remediation Cost Data - Assemblies |
| | Seeding, vegetative cover | ACRE | 0.8 | 4,624 | \$3,715 | \$3,790.00 | 1.22 | | Means 2005., #18 05 0402, Environmental Remediation Cost Data - Unit Price |
| | Excavation of Common Areas | | | | \$1,953,324 | | | | |
| 4 | Radiological Soil Screening | | | | | | | | |
| | Radiological Soil Plan | LS | 1 | 7,000.00 | \$7,000 | | | | Assumed |
| | Surface and subsurface Radiological Soil Screening | LS | 1 | 80,000.00 | \$80,000 | | | | |
| | Data Report | LS | 1 | 10,000.00 | \$10,000 | | | | |
| | Radiological soil screening | | | | \$97,000 | | | | |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|------------|--------------------|------------|---------------------|---|--|
| 5 | Confirmation Sampling | | | | | | | | |
| | Excavation wall length | LF | 7,543 | | | | | Length estimated using Microstation | |
| | Lead analysis (EPA 6010B) with 24 hour TAT | EA | 332 | \$42.00 | \$13,944 | \$42.00 | | Sidewall sample every 40 LF of wall length. Bottom sample every | Average vendor quote with 24-hr TAT |
| | QC samples for lead analysis (EPA 6010B) with 24 hour TAT | EA | 83 | \$42.00 | \$3,486 | \$42.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | PAH soil analysis (modified EPA 8270) with 24 HR TAT | EA | 332 | \$469.20 | \$155,774 | \$469.20 | | Sidewall sample for every 40 feet wall length. Bottom sample | Average vendor quote with 24-hr TAT |
| | QC samples for PAH soil analysis (modified EPA 8270) with 24 hour TAT | EA | 83 | \$469.20 | \$38,944 | \$469.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Pesticides (EPA 8081) /PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 332 | \$455.20 | \$151,126 | \$455.20 | | Sidewall sample every 40 LF of wall length. Bottom sample every | Average vendor quote with 24-hr TAT |
| | QC samples for pesticides (EPA 8081)/PCBs (EPA 8082) soil analysis with 24 hour TAT | EA | 83 | \$455.20 | \$37,782 | \$455.20 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 6 | \$1,530.00 | \$9,410 | \$1,530.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 246 | Average vendor quote with 24-hr TAT |
| | QC samples for Dioxins and Furans by 8290 soil analysis with 24 hour TAT | EA | 2 | \$1,530.00 | \$3,060 | \$1,530.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 14 | \$170.00 | \$2,444 | \$170.00 | | 1 sample every 40 LF of wall length. Wall length estimated as 575 feet using microstation | Average vendor quote with 24-hr TAT |
| | QC samples for Methane by TO-3 BTEX & TPH-Gasoline (GC/FID) with 24 hour TAT | EA | 3 | \$170.00 | \$510 | \$170.00 | | 1 field dup. and 1 equip. rinsate sample for every 10 C.S.; 1 matrix spike/lab dup. for every | Average vendor quote with 24-hr TAT |
| | Subcontracted sampling, one-man crew | DAY | 127 | \$ 738 | \$93,777 | \$605.00 | 1.22 | Assume 10 samples/day | Means 2005., #33 02 9907, Environmental Remediation Cost Data - Unit Price |
| | Surveying, 2-man crew | DAY | 127 | \$ 1,067 | \$135,587 | \$874.73 | 1.22 | Same as sampling crew | Means 2005., #99 24 1201, Environmental Remediation Cost Data - Unit Price |
| | Confirmation Sampling Subtotal | | | | \$645,843 | | | | |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|---|--|------|----------|------------|--------------------|--------------------|---------------------|---|--|
| 6 | Transportation & Disposal of Excavated Material | | | | | | | | |
| | Volume of demolished concrete and excavated waste | CY | 33,797 | | | | | Total summation of excavated waste | |
| | Waste Profile Sampling & Analysis | | 68 | \$1,136.40 | \$77,275 | | | Assume one sample every 500 CY | |
| | Kettleman Hills Facility Class I | | | | | | | | |
| | Disposal fee (includes Kings county and BOE tax) | TON | 51,709 | \$31.12 | \$1,609,177 | \$25.52 | | Assume 1.8 tons/cy and 85% of excavated | Quote from Waste Management for Kettleman Hills Facility |
| | Transportation via end dumps | TON | 51,709 | \$31.50 | \$1,628,827 | \$30.50 | \$ 1.00 | 23 ton minimum | Quote from Waste Management for Kettleman Hills Facility |
| | Altamont Landfill Class II | | | | | | | | |
| | Disposal fee | TON | 9,125 | \$29.72 | \$271,197 | \$12.50 | | Assume 1.8 tons/cy and 15% of excavated | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation via end dumps | TON | 9,125 | \$13.25 | \$120,907 | \$13.00 | \$0.25 | 23 ton minimum, 3 trips/day | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation & Disposal | | | | | \$3,707,384 | | | |
| 7 | Demobilize | | | | | | | | |
| | Replace Pavement in backyard (6" unreinforced slab on grade) | SF | 7,750 | \$4.26 | \$32,998 | \$3.49 | \$1.22 | | Means 2005., #18 02 0341, Environmental Remediation Cost Data - Unit Price |
| | Replace Pavement (4" mesh reinforced slab on grade) | SF | 18,018 | \$4.48 | \$80,672 | \$3.67 | \$1.22 | | Means 2005., #18 02 0330, Environmental Remediation Cost Data - Unit Price |
| | Replace Sidewalk (standard 6" sidewalk with mesh, formed) | SF | 948 | \$4.61 | \$4,373 | \$3.78 | \$1.22 | | Means 2005., #18 03 0304, Environmental Remediation Cost Data - Unit Price |
| | Demobilize heavy equipment | LS | 1 | \$ 4,217 | \$4,217 | \$3,456 | 1.22 | 3 Trailer Trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Environmental Remediation Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | General area cleanup | ACRE | 5.2 | \$ 378 | \$1,980 | \$309.86 | 1.22 | Common areas and backyards | Means 2005., #17 04 0101, Environmental Remediation Cost Data - Unit Price |
| | Demobilize Subtotal | | | | | \$124,240 | | | |
| 8 | Land Use Controls | | | | | | | | |
| | Land Use Control Remedial Design | LS | | | \$35,000 | | | Assumed | |
| | Land Use Control Subtotal | | | | \$35,000 | | | | |
| | Total Direct Costs | | | | \$7,647,729 | | | | Unit prices obtained from Means 2005 were adjusted with a location multiplier of 1.22 |
| | Scope contingencies (10% of Subtotal Direct) | | | | \$764,772.92 | | | | |
| Bid contingency for Disposal (10% of subtotal transport & disposal costs) | | | | \$370,738 | | | | | |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|---------------------|------------|---------------------|---|---|
| | Bid contingency for administrative (5% of direct cost) | | | | \$382,386 | | | | |
| | Insurance (5% of direct cost) | | | | \$382,386 | | | | |
| | TOTAL DIRECT COSTS | | | | \$9,548,013 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$9,853,550 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | INDIRECT COSTS | | | | | | | | |
| | Construction Management Staff | WK | 27 | | | | | Assume 1 wk mob., 25 wks excavating, 1 wk | |
| | Construction Manager | WK | 27 | \$ 1,947 | \$52,572 | \$1,596.00 | 1.22 | 8 hour days | Means 2005., #99 01 0102, Environmental Remediation Cost Data - Unit Price (Site Project Manager, average cost) |
| | Field Supervisor | WK | 27 | \$ 1,830 | \$49,410 | \$1,500.00 | 1.22 | 8 hour days | Means 2005., #99 01 0202, Environmental Remediation Cost Data - Unit Price (Superintendent, average cost) |
| | QC Engineer | WK | 27 | \$ 1,710 | \$46,182 | \$1,402.00 | 1.22 | 8 hour days | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average cost) |
| | Site H&S officer | WK | 27 | \$ 2,356 | \$63,615 | \$1,931.25 | 1.22 | 8 hour days | Means 2005., #99 01 0702, Environmental Remediation Cost Data - Unit Price (Safety Engineer, average cost) |
| | Construction Management Staff Subtotal | | | | \$211,779 | | | | |
| | Office Overhead (5% of construction management staff cost) | | | | \$10,589 | | | | |
| | General & Administration (5% of construction management staff cost) | | | | \$10,589 | | | | |
| | Home Office Expenses (5% of construction management staff cost) | | | | \$10,589 | | | | |
| | Total Construction Management | | | | \$243,546 | | | | |
| | Other Costs | | | | | | | | |
| | Design (10% of direct cost) | | | | \$954,801.34 | | | | |
| | Other Costs Subtotal | | | | \$954,801 | | | | |
| | TOTAL INDIRECT COSTS | | | | \$1,198,348 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$1,236,695 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | Total Direct & Indirect Costs | | | | \$11,090,245 | | | | |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-----------|--|------|----------|-----------|---------------------|------------|---------------------|--|--|
| | Profit (10% of Subtotal Direct & Indirect Costs) | | | | \$1,109,024.47 | | | | |
| | TOTAL CAPITAL COSTS | | | | \$12,199,269 | | | | |
| B. | ANNUAL & PERIODIC COSTS | | | | | | | | |
| 1 | Annual Costs | | | | | | | | |
| | Monitoring changes in post-closure land use and LUCs | WK | 1 | \$ 1,710 | \$1,710 | | | Contractor annual inspections for 1 week duration | Means 2005., #99 01 0802, Environmental Remediation Cost Data - Unit Price (Quality Control, average cost) |
| | Excavator | CY | 106 | \$ 13.49 | \$1,425 | \$11.06 | 1.22 | Excavator, 5% of surface area to depth of 3-inches/ annually | |
| | Seeding & Mulching | ACRE | 0.52 | 4,624 | \$2,422 | \$3,790.00 | 1.22 | seeding 10% of surface area/annually | |
| | Subtotal Annual Costs | | | | \$5,557 | | | | |
| | Contingency (0%) | | | | \$0.00 | | | | |
| | Subtotal Annual Costs | | | | \$5,557 | | | | |
| | Technical Support & Project Management (20% of annual costs) | | | | \$1,111.41 | | | | |
| | Total Annual Costs | | | | \$6,668 | | | | |
| | Escalated Costs (2005 - 2006) | | | | \$6,882 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/jj/jensena/sfp/ca/calif.htm) |
| 2 | Periodic Costs | | | | | | | | |
| | Five Year Review Reports [every 5 years] | EA | 1 | \$12,000 | \$12,000 | | | Assumed | Assumed |
| | Subtotal Periodic Costs | | | | \$12,000 | | | | |
| | Technical Support & Project Management (20%) | | | | \$2,400.00 | | | | |
| | Subtotal Periodic Costs | | | | \$14,400 | | | | |

TABLE F-4: ALTERNATIVE 4 - COST OPINION - SOIL EXCAVATION TO 4 FEET (INCLUDING HARDSCAPE)*

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|-------------|----------------------------------|----------------------------|----------------------|-----------|---------------------|------------------------|--|
| C | PRESENT VALUE ANALYSIS | | | | | | | | |
| | | Year | Total Cost Non-Discounted | Total Cost per Year | Present Value | | | Discount Factor | Period & Discount Rate Assumptions |
| | Capital Costs | 0 | \$ 12,199,269 | \$ 12,199,269 | \$ 12,199,269 | | | 1 | |
| | Annual O&M costs | 1-30 | \$ 206,455 | \$ 6,882 | \$ 103,421 | | | 5.20% | (1) 30 years until buildings are replaced with new structures, and (2) Discount rate: U.S. Government Treasury Bonds, January 2006, 30 year bond, 5.2% (http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html) |
| | Periodic Costs (every 5 years, year 5 through 30) | 5-30 | \$ 86,400 | \$ 14,400 | 36,967 | | | 5.20% | |
| | | | \$ 12,492,124 | | \$ 12,339,657 | | | | |
| D | TOTAL PRESENT VALUE OF ALTERNATIVE 4 | | | | \$ 12,339,657 | | | | |

Notes:

* In addition, soil excavation to 6 inches below the elevation of any utility, if present. The methane impacted area will also be excavated.

| | | | |
|--------|--|------|---------------------------------|
| bgs | Below ground surface | ICP | Inductively-Coupled Plasma |
| BOE | Board of Equalization | in | Inch |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes | LF | Linear feet |
| C.S | Confirmation sample | LS | Lump sum |
| CY | Cubic yard | LUC | Land use control |
| EA | Each | MO | Month |
| Excav | Excavation | PAH | Polycyclic aromatic hydrocarbon |
| EPA | Environmental Protection Agency | PCB | Polychlorinated biphenyl |
| ft | Feet | QC | Quality control |
| GC/FID | Gas Chromatograph(y)-Flame Ionization Detector | SF | Square feet |
| GVW | Gross vehicle weight | SWDA | Solid Waste Disposal Area |
| H&S | Health and safety | SY | Square yard |
| HiVols | High Volume | TAT | Turn around time |
| HR | Hour | TPH | Total petroleum hydrocarbon |
| | | WK | Week |

Reference:

R.S. Means Company, Inc. (Means). 2005 "Environmental Remediation Cost Data – Assemblies." 11th Annual Edition.
 Means 2005. "Environmental Remediation Cost Data – Unit Cost." 11th Annual Edition.

TABLE F-5: ALTERNATIVE 5 - COST OPINION - CAPPING

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|--|------|----------|-------------|--------------------|-----------|---------------------|---|--|
| A | CAPITAL COSTS | | | | | | | | |
| | DIRECT COSTS | | | | | | | | |
| 1 | Mobilization | | | | | | | | |
| | Mobilize heavy equipment (2 hydraulic excavators, 1 wheel loader) | LS | 1 | \$ 4,217 | \$4,217 | 3,456 | 1.22 | 3 trailer trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Envir. Remed. Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | Temporary Office 32' X 8' | MO | 4 | \$ 303 | \$1,213 | 249 | 1.22 | Estimated time for excavation | Means 2005., #99 04 0102 Envir. Remed. Cost Data - Assemblies |
| | Health & safety program | LS | 1 | \$75,000 | \$75,000 | \$50,000 | | | Assumed |
| | Mobilization Subtotal | | | | \$80,429 | | | | |
| 2 | Fencing | | | | | | | | |
| | Site 12 | | | | | | | | |
| | Remove wood fence | LF | 7,280 | \$ 2.42 | \$17,586 | \$1.98 | 1.22 | LF calculated using Microstation | Means 2005., #17 02 0231, Level E, Envir. Remed. Cost Data - Assemblies |
| | Install privacy fence, 6 ft high, wood | LF | 7,280 | \$ 18.00 | \$131,004 | \$14.75 | 1.22 | Same as above | Means 2005., #18 04 0103, Level E, Envir. Remed. Cost Data - Assemblies |
| | Fencing Subtotal | | | | \$148,589 | | | | |
| 3 | Capping unpaved areas | | | | | | | | |
| | Site 12 | | | | | | | | |
| | Total unpaved Area Within SWDAs | SF | 209,160 | | | | | SF calculated using Microstation | |
| | Number of Backyards | # | 62 | | | | | Counted using ArcView | |
| | Clearing vegetation (light brush without grub) | ACRE | 4.8 | \$ 94.83 | \$455 | \$77.73 | 1.22 | | Means 2005., #17 01 0101, Level D, Envir. Remed. Cost Data - Assemblies |
| | Demolish existing backyard pavement (unreinforced concrete, 6" thick) with air equipment | CY | 266 | \$ 75.12 | \$20,002 | \$61.57 | 1.22 | Assume pavement is 6" thick and 1/4 of backyard area | Means 2005., #17 02 0205, Level D, Envir. Remed. Cost Data - Assemblies |
| | Excavate topsoil using crawler-mounted, 0.5 CY, hydraulic | CY | 2,582 | \$ 8.91 | \$23,008 | \$7.30 | 1.22 | Assume topsoil is 4-inch over entire unpaved area. | Means 2005., #17 03 0433, Level D, Envir. Remed. Cost Data - Assemblies |
| | Excavate topsoil using crawler-mounted, 0.5 CY, hydraulic excavator @ 20 CY/HR | CY | 382 | \$ 8.91 | \$3,404 | \$7.30 | 1.22 | Assume excavating methane impacted area to 4 feet. Methane impacted area estimated using Microstation | Means 2005., #17 03 0433, Level D, Envir. Remed. Cost Data - Assemblies |
| | Load using 931, 1.0 CY, Track Loader @ 44 CY/HR | CY | 3,231 | \$ 2.11 | \$6,808 | \$1.73 | 1.22 | Use entire excavation time. | Means 2005., #17 03 0215, Level D, Envir. Remed. Cost Data - Assemblies |
| | Fine grading, hand | SY | 23,240 | \$ 3.03 | \$70,315 | \$2.48 | 1.22 | | Means 2005., #17 03 0105, Level D, Envir. Remed. Cost Data - Assemblies |
| | Backfill with off-site unclassified fill (includes delivery, spreading, and compaction) | CY | 2,964 | \$ 39.04 | \$115,723 | \$32.00 | 1.22 | Assume same volume as removed topsoil | Vendor Quote (Ryan Engineering services) |
| | Area inlets, precast | EA | 62 | \$ 1,062.90 | \$65,900 | \$871.23 | 1.22 | Assume one inlet per backyard | Means 2005., #18 02 0201, Level E, Envir. Remed. Cost Data - Unit Price |
| | 8" corrugated metal pipe, bituminous coated & paved | LF | 1,310 | \$ 7.97 | \$10,436 | \$6.53 | 1.22 | Linear feet estimated using Microstation, based on conceptual design | Means 2005., #19 03 0101, Level E, Envir. Remed. Cost Data - Unit Price |

TABLE F-5: ALTERNATIVE 5 - COST OPINION - CAPPING

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|------|----------|------------|--------------------|-----------|---------------------|--|--|
| | 10" corrugated metal pipe, bituminous coated & paved | LF | 2,902 | \$ 12.57 | \$36,467 | \$10.30 | 1.22 | Linear feet estimated using Microstation, based on conceptual design | Means 2005., #19 03 0102, Level E, Envir. Remed. Cost Data - Unit Price |
| | 6" inside diameter (Vertical pipe spaced @200LF) Gas Vent piping system | LF | 7,543 | \$ 30.37 | \$229,049 | \$24.89 | 1.22 | Linear feet estimated using Microstation | Means 2005., #33 07 0201, Level D, Envir. Remed. Cost Data - Assemblies |
| | Cap using 4" mesh reinforced slab on grade | SF | 209,160 | \$ 4.48 | \$936,493 | \$3.67 | 1.22 | Cap entire unpaved area | Means 2005., #18 02 0330, Level E, Envir. Remed. Cost Data - Unit Price |
| | Capping unpaved SWDAs Subtotal | | | | \$1,518,060 | | | | |
| 6 | Transportation & Disposal of Excavated Material | | | | | | | | |
| | <i>Volume of demolished concrete and excavated waste</i> | CY | 3,231 | | | | | Total summation of excavated waste volume | |
| | Waste Profile Sampling & Analysis | | 7 | \$1,200.00 | \$8,400 | | | | |
| | Kettleman Hills Facility Class I | | | | | | | | |
| | Disposal fee (includes Kings County and BOE tax) | TON | 872 | \$31.12 | \$27,144 | \$25.52 | | Assume 1.8 tons/cy and 15% of excavated waste | Quote from Waste Management for Kettleman Hills Facility |
| | Transportation via end dumps | TON | 872 | \$41.00 | \$35,762 | \$41.00 | | | Quote from Waste Management for Kettleman Hills Facility |
| | Altamont Landfill Class II | | | | | | | | |
| | Disposal fee | TON | 4,943 | \$29.72 | \$146,896 | \$12.50 | | Assume 1.8 tons/cy and 85% of excavated waste | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation via end dumps | TON | 4,943 | \$18.00 | \$88,968 | \$18.00 | | 23 ton minimum, 3 trips/day | Quote from Waste Management for Altamont Landfill Class II Disposal |
| | Transportation & Disposal Subtotal | | | | \$307,170 | | | | |
| 7 | Demobilize | | | | | | | | |
| | Demobilize heavy equipment (2 hydraulic excavators, 1 wheel loader) | LS | 1 | \$ 4,217 | \$4,217 | 3,456 | 1.22 | 3 Trailer Trips of 1 day each + 2 laborers for one week | Means 2005., #33 01 0111 & #99 01 06, Envir. Remed. Cost Data - Unit Price (Truck, 2 axle, Highway, 33,000 GVW, 6 x 2 and General-purpose laborer) |
| | General area cleanup | ACRE | 4.8 | \$ 378.03 | \$1,815 | \$309.86 | 1.22 | All unpaved areas | Means 2005., #17 04 0101, Envir. Remed. Cost Data - Unit Price |
| | Demobilize Subtotal | | | | \$6,032 | | | | |
| 8 | Land Use Controls | | | | | | | | |
| | Land Use Control Remedial Design | LS | | | \$35,000 | | | Assumed | |
| | Land Use Control Subtotal | | | | \$35,000 | | | | |
| | Subtotal Direct Costs | | | | \$2,095,280 | | | | Unit prices obtained from Means 2005 were adjusted with a location multiplier of 1.22 |

TABLE F-5: ALTERNATIVE 5 - COST OPINION - CAPPING

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-------|---|------|----------|-----------|--------------------|------------|---------------------|---|---|
| | Scope contingencies (15% of Subtotal Direct) | | | | \$314,292.02 | | | | |
| | Bid contingency for Disposal (10% of subtotal transport & disposal costs) | | | | \$30,717 | | | | Potential disposal fee increase at facility with increased energy costs, and changes in market |
| | Bid contingency for administrative (5% of direct cost) | | | | \$104,764 | | | | |
| | Insurance (5% of direct cost) | | | | \$104,764 | | | | |
| | TOTAL DIRECT COSTS | | | | \$2,649,817 | | | | |
| | INDIRECT COSTS | | | | | | | | |
| | Construction Management Staff | WK | 16 | | | | | Assume 1 wk mob., 5 weeks excavating, 9 wks paving, 1 wk demob; | |
| | Construction Manager | WK | 16 | \$ 1,947 | \$31,154 | \$1,596.00 | 1.22 | 8 hour days | Means 2005., #99 01 0102, Envir. Remed. Cost Data - Unit Price (Site Project Manager, average cost) |
| | Field Supervisor | WK | 16 | \$ 1,830 | \$29,280 | \$1,500.00 | 1.22 | 8 hour days | Means 2005., #99 01 0202, Envir. Remed. Cost Data - Unit Price (Superintendent, average cost) |
| | QC Engineer | WK | 16 | \$ 1,710 | \$27,367 | \$1,402.00 | 1.22 | 8 hour days | Means 2005., #99 01 0802, Envir. Remed. Cost Data - Unit Price (Quality Control, average cost) |
| | Site H&S officer | WK | 16 | \$ 2,356 | \$37,698 | \$1,931.25 | 1.22 | 8 hour days | Means 2005., #99 01 0702, Envir. Remed. Cost Data - Unit Price (Safety Engineer, average cost) |
| | Construction Management Staff | | | | \$125,499 | | | | |
| | Office Overhead (5% of construction management staff cost) | | | | \$6,274.95 | | | | |
| | General & Administration (5% of construction management staff cost) | | | | \$6,274.95 | | | | |
| | Home Office Expenses (5% of construction management staff cost) | | | | \$6,274.95 | | | | |
| | Total Construction Management | | | | \$144,324 | | | | |
| | Other Costs | | | | | | | | |
| | Design (10% of direct cost) | | | | \$264,981.71 | | | | |
| | Other Costs Subtotal | | | | \$264,982 | | | | |
| | TOTAL INDIRECT COSTS | | | | \$409,306 | | | | |
| | Total Direct & Indirect Costs | | | | \$3,059,123 | | | | |

TABLE F-5: ALTERNATIVE 5 - COST OPINION - CAPPING

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|-----------|---|------|----------|-----------|--------------------|-----------|---------------------|---|---|
| | Escalated Costs (2005-2006) | | | | \$3,157,015 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| | Profit (10% of Subtotal Direct & Indirect Costs) | | | | \$315,701.46 | | | | |
| | TOTAL CAPITAL COSTS | | | | \$3,472,716 | | | | |
| B. | ANNUAL & PERIODIC COSTS | | | | | | | | |
| 1 | Annual Costs | | | | | | | | |
| | Monitoring changes in post-closure land use and LUCs | WK | 1 | \$ 1,710 | \$1,710 | | | Contractor annual inspections for 1 week duration | Means 2005., #99 01 0802, Envir. Remed. Cost Data - Unit Price (Quality Control, average cost) |
| | Subtotal Annual Costs | | | | \$1,710 | | | | |
| | Technical Support & Project Management (20% of annual costs) | | | | \$342.09 | | | | |
| | Total Annual Costs | | | | \$2,053 | | | | |
| | Escalated Costs (2005-2006) | | | | \$2,118 | | | Assume Escalation factor of 3.2% | Escalation factor obtained from State of California economic forecast (http://www.csus.edu/indiv/j/jensena/sfp/ca/calif.htm) |
| 2 | Periodic Costs | | | | | | | | |
| | Five Year Review Reports [every 5 | EA | 1 | \$12,000 | \$12,000 | | | Assumed | Assumed |
| | Subtotal Periodic Costs | | | | \$12,000 | | | | |
| | Technical Support & Project Management (20%) | | | | \$2,400.00 | | | | |
| | Subtotal Periodic Costs | | | | \$14,400 | | | | |
| | Replacing damaged pavement covering backyards & common areas (every 10 years) | LS | 1 | \$102,681 | \$102,681 | | | | Assume 10% of paving costs at 10 and 20 years |
| | Technical Support & Project Management (20% of replacing pavement) | | | | \$20,536.19 | | | | |
| | Subtotal Periodic Costs | | | | \$123,217 | | | | |

TABLE F-5: ALTERNATIVE 5 - COST OPINION - CAPPING

Installation Restoration Site 12

| Phase | Item/Description | Unit | Quantity | Unit Cost | Line Item Subtotal | Unit Cost | Location Multiplier | Quantity Assumptions | Unit Cost Assumptions |
|----------|---|-------------|----------------------------------|----------------------------|----------------------|-----------|---------------------|------------------------|--|
| C | PRESENT VALUE ANALYSIS | | | | | | | | |
| | | Year | Total Cost Non-Discounted | Total Cost per Year | Present Value | | | Discount Factor | Period & Discount Rate Assumptions |
| | Capital Costs | 0 | \$ 3,472,716 | \$ 3,472,716 | \$ 3,472,716 | | | 1 | |
| | Annual O&M costs | 1-30 | \$ 61,576 | \$ 2,053 | \$ 30,846 | | | 5.20% | (1) 30 years until buildings are replaced with new structures, and (2) Discount rate: U.S. Government Treasury Bonds, January 2006, 30-year bond, 5.2% (http://www.whitehouse.gov/omb/circulars/a094/a94_appx-c.html) |
| | Periodic Costs (every 5 years, year 5 through 30) | 5-30 | \$ 86,400 | \$ 14,400 | \$ 39,008 | | | 5.20% | |
| | Periodic Costs (every 10 years) | 10,20 | \$ 246,434 | \$123,217 | \$ 118,924 | | | 5.20% | |
| | | | | | \$ 3,661,493 | | | | |
| D | TOTAL PRESENT VALUE OF ALTERNATIVE 5 | | | | \$ 3,661,493 | | | | |

Notes:

| | | | |
|--------|---|-------|-----------------------------|
| bgs | Below ground surface | LF | Linear feet |
| BOE | Board of Equalization | LS | Lump sum |
| BTEX | Benzene, toluene, ethylbenzene, and xylenes | LUC | Land use control |
| CY | Cubic yard | MO | Month |
| EA | Each | QC | Quality control |
| Envir. | Environment | Remed | Remediation |
| Excav | Excavation | SF | Square feet |
| EPA | Environmental Protection Agency | SWDA | Solid Waste Disposal Area |
| ft | Feet | SY | Square yard |
| GVW | Gross vehicle weight | TAT | Turn around time |
| H&S | Health and safety | TPH | Total petroleum hydrocarbon |
| HR | Hour | WK | Week |

Reference:

R.S. Means Company, Inc. (Means). 2005 "Environmental Remediation Cost Data – Assemblies." 11th Annual Edition.
 Means 2005. "Environmental Remediation Cost Data – Unit Cost." 11th Annual Edition.

**ATTACHMENT 2:
COMMENTS AND DON RESPONSIVENESS SUMMARY ON THE
ENGINEERING EVALUATION AND COST ANALYSIS FOR
SOLID WASTE DISPOSAL AREAS AT INSTALLATION RESTORATION SITE 12,
OLD BUNKER STORAGE AREA, NAVAL STATION TREASURE ISLAND,
SAN FRANCISCO, CALIFORNIA**

**FINAL RESPONSES TO REGULATORY AGENCY COMMENTS AND
RESPONSIVENESS SUMMARY ON THE REVISED ENGINEERING EVALUATION
AND COST ANALYSIS, SOLID WASTE DISPOSAL AREAS,
INSTALLATION RESTORATION SITE 12, OLD BUNKER AREA,
NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA**

This document presents the U.S. Department of the Navy (DoN) responses to comments from the regulatory agencies and the responsiveness summary to comments from the public on the “Revised Draft Engineering Evaluation and Cost Analysis [EE/CA], Solid Waste Disposal Areas [SWDA], Installation Restoration [IR] Site 12, Old Bunker Area, Naval Station Treasure Island, San Francisco California,” dated June 12, 2006. The regulatory agency comments addressed below were received from the Department of Toxic Substances Control (DTSC) on July 17, 2006; the San Francisco Bay Regional Water Quality Control Board (Water Board) on July 21, 2006; Treasure Island Development Authority (TIDA) on July 17 and November 15, 2006; TIDA’s environmental consultant, Geomatrix Consultants, Inc. (Geomatrix), on July 17 and November 7, 2006; and the Restoration Advisory Board on July 21 and November 11, 2006.

The responsiveness summary contains DoN responses to comments from the general public during the public meeting on October 24, 2006, and during the public comment period from October 10 to November 11, 2006.

RESPONSES TO COMMENTS FROM THE WATER BOARD

General Comments

1. **Comment:** The remedial action objective stated throughout the report refers only to restricting the potential for direct contact of residents to contamination in soil. However, there is also the potential for utility workers to encounter contaminated soil or solid waste while installing or servicing underground utilities. This is discussed in *Section 2.4.5.1 Potential Receptors* and in *Section 2.4.5.2 Exposure Pathways*. For consistency, when stating remedial action objectives, please also address the potential risk to utility workers.

Response: This planned removal action is meant to address potential risk from direct contact with soil to a resident or utility worker under the current land use and utility configuration. The potential risk to a future utility worker who maintains or installs new utility lines is being evaluated in the forthcoming Remedial Investigation (RI) Report. The revised EE/CA will be revised to clarify this objective.

2. **Comment:** Throughout the report, the discussions of the nature and extent of contamination refer to the presence of contamination in near surface soils. The use of the term “near surface soils” implies that soil

RESPONSES TO COMMENTS FROM THE WATER BOARD (CONTINUED)

contamination occurs only at shallow depths. However, the presumptive need for institutional controls and the understanding that all the proposed remedial alternatives will leave some soil contamination in place suggests that soil contamination occurs at depths greater than two feet below ground surface. Please define the term “near surface soils” and clarify the depth of contamination being considered.

Response: The planned removal action is meant to address potential risk to a resident or utility worker under the current land and utility configuration. Risk to these receptors exists through direct contact with soil. Based on the current depth to utilities and to groundwater, it is anticipated that potential direct contact with contaminated soil is only likely from the surface soil down to 4 feet below ground surface (bgs). The term “near-surface soils” therefore refers to soil to a depth of 4 feet bgs. This is the maximum depth of contamination being considered in the revised EE/CA. The revised EE/CA will be revised to clarify the term “near-surface soils.”

3. **Comment:** Two of the remedial alternatives propose soil excavation to mean higher high water (MHHW). In addition, all the remedial alternatives propose that only the utilities above MHHW (either in paved areas only or both paved and unpaved areas) will be addressed. The only rationale provided for choosing MHHW as the target elevation is to avoid excavating below the groundwater table. Please provide a more complete justification for choosing MHHW as the target elevation for soil excavation and for only addressing utilities above MHHW. Also, please provide the range of depth to MHHW (this information was supposed to be provided in Table F-1 but was not included in the appendix).

Response: Although excavations are present at the site to depths below mean higher high water (MHHW), the DoN does not believe that additional protection to a resident would be provided by excavating below MHHW because it is unlikely that a resident would dig below this depth. However, in light of the technical feasibility of excavating to 4 feet bgs without groundwater intrusion, the DoN will change the MHHW to 4 feet bgs for Alternatives 3 and 4.

Specific Comments

1. **Comment:** Pg. 2-13 states that “Inhalation of VOCs released from soil was considered to be incomplete because of the low volatility of PAHs and PCBs and the rapid dilution and dispersion of any chemicals released to outdoor air”. However, the potential inhalation and exposure to

RESPONSES TO COMMENTS FROM THE WATER BOARD (CONTINUED)

vapors volatilizing from combined surface and subsurface soil and groundwater is considered to be a significant pathway for utility workers. Please provide more justification for the quoted statement (e.g. information on soil concentrations or a reference to a previous report). Also, please address whether this assessment would be accurate for future land use scenarios (e.g. residential housing).

Response: The potential risk to a future utility worker who maintains or installs new utility lines is being evaluated in the forthcoming RI Report, which will consider all relevant exposure pathways.

2. **Comment:** **Pg. 4-2 states that as part of the excavation alternative, interim restrictions would be implemented to address any remaining soils to prohibit soil-intrusive activities. Please specify what interim restrictions would be implemented.**

Response: Interim restrictions would include lease restrictions to restrict residents from disturbing the soil and a dig permit program to prohibit or regulate activities that are intrusive below backfilled clean soil into contaminated soil that remains after the removal action.

3. **Comment:** **Pg. 4-2 states that institutional controls will be necessary to ensure the integrity of the two-foot soil cover over contaminated soils. Please provide more specific information on what mechanisms will be implemented through the O&M and Post-Closure Monitoring Plan to ensure the integrity of the soil cover, particularly since some of these areas include backyards.**

Response: The management of institutional controls (IC) will be the responsibility of the property owner, currently the DoN. The management of ICs will transfer with the property and become the transferees' responsibility. The DoN has a Memorandum of Agreement (MOA) with DTSC for enforcement. There are no formal agreements between the DoN and the City of San Francisco at this time regarding ICs. The DoN revised the EE/CA to provide a general description of the ICs that would be necessary for each alternative. Because overall Site 12 risks are being evaluated in the forthcoming RI Report and subsequent Feasibility Study (FS) Report, detailed descriptions of site-wide ICs will be developed and evaluated as part of the FS and Record of Decision process.

RESPONSES TO COMMENTS FROM DTSC

General Comments

1. **Comment:** In evaluating the revised EE/CA DTSC staff noted that the scope has been modified significantly as it is now limited to the SWDAs, whereas the original was intended to address Site 12 in its entirety, including all backyards and common areas both within and outside the SWDAs. DTSC understands that the Navy modified the scope in order to expedite the cleanup of the known SWDAs and that additional investigations completed since 2002 have demonstrated that the nature and extent of contamination in the SWDAs is significantly different than the remainder of Site 12. However, the revised EE/CA retains much of the original language from the 2002 EE/CA, which supported the need for a remedial action for all of Site 12, and leaves the reader with the impression that the areas outside of the SWDAs could contain contaminants at levels and volumes similar to the SWDAs. DTSC does not believe this to be the case and agreed to limit the scope of the EE/CA, to the known SWDAs, because contaminant issues outside the SWDAs appear to be of less concern and do not represent a serious threat to human health or the environment that warrants an immediate response.

The language in question from the 2002 EE/CA, that supported the need for a removal action throughout Site 12, is most prevalent in Sections 1 and 2 of the revised EE/CA but additional language can also be found throughout the document. DTSC strongly recommends that the Navy evaluate the language used to support a remedial action in the SWDAs and eliminate language that suggests that contamination issues outside the SWDAs are similar to those within the SWDAs. Please see our specific comments below for examples of the language in question.

Response: Sections 1.0 and 2.0 of the revised EE/CA will be revised to clarify that areas outside of the SWDAs are anticipated to contain chemicals at concentrations and volumes significantly less than those within the SWDAs, and that these areas will be evaluated in more detail in the RI Report being prepared for IR Site 12.

2. **Comment:** To allow for the evaluation of the alternatives proposed in the EE/CA as potential final remedies, context for the selection of a final remedy needs to be provided. Specifically, the Navy needs to discuss how the EE/CA comports with the overall CERCLA process at Site 12, what the planned future uses of the site are and how those future uses factored into the generation of the proposed EE/CA alternatives. DTSC understands that the site has been and will likely be used for

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

residential purposes for some years into the future but no statement about the certainty of this use or the anticipated duration is provided. To adequately evaluate the alternatives presented, DTSC needs some assurance about the future use of the site and an understanding of the agreements reached with the City of San Francisco regarding the management of the site, and specifically, the enforcement of any necessary institutional controls. Without a clear understanding of future use and how the site will be managed after transfer, DTSC is unable to assess the potential effectiveness of the alternatives proposed or recommend a preferred alternative.

DTSC also understands that the Navy does not intend to issue a second draft of the EE/CA and that the Navy is planning to respond to all comments made on the EE/CA in the forthcoming action memorandum. DTSC is not in favor of this approach as we believe that significant changes to the document are necessary that will warrant an additional review before being distributed for public review.

Response: The DoN will add text discussing the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process in Section 1.1; however, because this EE/CA is evaluating alternatives to reduce risk to residents and utility workers under the current land use and configuration, additional risk will be evaluated in the FS Report after the removal action is completed to determine if it can be accepted as the final remedy.

Various conceptual proposals for redevelopment have been presented by the City of San Francisco; however, as agreed with the city, the DoN will continue to use the 1996 Draft Naval Station Treasure Island Reuse Plan ([City and County of San Francisco 1996](#)) as the basis for planning remediation activities for any future reuse. The DoN cannot determine how long the current use of Site 12 will remain or what the future use will entail; however, the reasonably foreseeable future use would be residential under the current land use configuration. As a result, the main objective of the planned removal action is to reduce risk to a resident and utility worker that may occupy or work in the areas covered by the SWDAs under the current land configuration. The DoN will revise Section 2.2 of the revised EE/CA to discuss the Draft Reuse Plan and the reasonably foreseeable future use of the SWDAs.

The management of ICs will be the responsibility of the property owner, currently the DoN. The management of ICs will transfer with the property and become the transferees' responsibility. The DoN has a MOA with DTSC for enforcement. The DoN and the City do not have any formal agreements at this time regarding ICs.

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

To keep the project on schedule, the DoN proposes to prepare a working draft version of the Revised EE/CA for discussion with the Base Realignment and Closure (BRAC) Cleanup Team (BCT) before the document is finalized. The DoN will incorporate changes into the working draft in response to comments received on the draft version. If necessary, an over-the-shoulder meeting may be held with the BCT to review and finalize the revised EE/CA.

Specific Comments

1. **Comment:** **Page ES-1, Executive Summary, Removal Action Objectives. The protection of future utility or construction workers needs to be fully evaluated and listed as one of the removal action objectives. It should also be noted that pets will utilize the backyards and common areas and may engage in activities that could lead to contaminant exposures, both to themselves and residents.**

Response: The potential risk to a future utility worker maintaining or installing new utility lines is being evaluated in the forthcoming RI Report. The planned removal action is meant to address potential risk to a resident or utility worker under the current land and utility configuration. The revised EE/CA will be revised to clarify this objective. The DoN does not plan to specifically evaluate potential risk to pets in the revised EE/CA or the RI Report.

2. **Comment:** **Page ES-2, Executive Summary, Removal Action Alternatives. The five alternatives listed in this section will either provide for the removal of soil or capping of contaminants in place. However, none of the alternatives include a description of the corresponding institutional controls (ICs) that may be necessary if contaminants are left in place, whether at depth, beneath hardscaping or under buildings.**

DTSC believes that ICs will likely be a component of any of the listed alternatives and that when ICs are proposed, supporting justification for their use needs to be presented so the reader can evaluate how effective they may be at ensuring the adequate future management of the contaminants being left in place. At a minimum, a description of how the ICs will be designed and managed needs to be presented in the EE/CA. As Site 12 will likely be transferred to the City of San Francisco (City), the Navy needs to describe the specific agreements reached with the City on the future management of ICs and include a detailed description of how the Navy and/or City intends to enforce them for the duration of their use.

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

Please also discuss whether alternatives 3 and 4 will include the removal of soil beneath existing utility lines.

Response: Please see the response to Water Board Specific Comment 3 about ICs and the response to Water Board General Comment 3 about the depth of excavations under Alternatives 3 and 4. The text describing Alternatives 3 and 4 will be revised to emphasize that soil below utilities encountered above 4 feet bgs will be addressed.

- 3. Comment:** **Page ES-3, Executive Summary, Comparative Analysis of Removal Action Alternatives. In addition to residents, the comparative analysis needs to include an evaluation of utility workers who may be conducting maintenance or construction of new utilities in the future.**

Response: As stated in the response to Water Board General Comment 1, this planned removal action is meant to address potential risk to a resident or utility worker under the current land and utility configuration. The overall potential risk to a future utility worker will be evaluated in the forthcoming RI Report. After the removal action is completed, the risks to the utility workers will be recalculated and presented in the FS Report.

- 4. Comment:** **Page 1-3, Section 1.3, Description of the Site History and Conceptual Model. This section states that Navy operations resulted in the release of contaminants to the surface soils in Site 12. It should also be noted that contaminants have been detected in the known SWDAs at depths exceeding fifteen feet.**

Response: Comment noted. The Revised EE/CA focuses on contamination between 0 and 4 feet bgs within the SWDAs. This information will be clarified in the Revised EE/CA.

- 5. Comment:** **Page 1-3, Section 1.4, Site Characterization Outside of the Solid Waste Disposal Areas. This section discusses site characterization issues outside of the known SWDAs, which is not the main focus of the revised EE/CA, and should be modified to reflect, in summary fashion, what is generally known about the contaminant issues outside the known solid waste disposal areas.**

The first paragraph of this section states that the most recent investigation in Site 12 was conducted in March 2002, which is not accurate. Please update this and other sections of the document to reflect the most recent investigation that involved trenching throughout the common areas in Site 12. Also, DTSC's copy of Appendix B did not include all of the hardcopy figures (B1- B8).

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

The second paragraph of this section states that *“additional investigations revealed areas with elevated lead and TPH contamination and that potential risk from TPH is considered to be low and will be further evaluated in the RI Report.”* This statement implies that lead could be located throughout Site 12 and that it may be present at levels that are unsafe for current residents. DTSC suggest that this statement be modified and some context provided so that the reader is not left with the impression that not enough is understood about the configuration of lead and the corresponding risk to residents.

The third paragraph of this section states that *“Based on the investigations conducted before 1999, the contamination was localized and the number and location of samples was adequate to characterize the contamination.”* This statement is both misleading and confusing and should either be removed or fully explained so that the reader can understand what point the Navy is trying to make (i.e., where was the contamination localized and how was it determined that the number and location of samples was adequate to characterize the contamination?). And the last sentence of this paragraph, *“Since no information regarding the release of PCBs was known, the discovery of the PCB release was unexpected”*, implies that the discovery of a release was not expected, which is not accurate. The purpose of investigating a storage yard or any site where materials were stored or handled, is to determine whether past activities resulted in a release to the environment. And as storage yards typically handle both solid and liquid materials, the discovery of some type of a release was not unexpected by DTSC staff.

The seventh full paragraph of this section states *“In the areas outside of the SWDA’s, the location(s) or presence of hazardous materials cannot be reliably predicted.”* While its true that contaminants may be encountered throughout the common areas in Site 12, it is not accurate to suggest that contaminants may be found at concentrations and volumes similar to those found in the known SWDAs.

Response: Section 1.4 will be revised to include the dates of the most recent investigations.

The text of the second paragraph will be revised to reflect the fact that concentrations of chemicals within the known SWDAs are much higher than the concentrations outside of the known SWDAs.

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

The following sentences will be deleted from the revised EE/CA because they provide no additional value to the discuss of site characterization.

- *“Based on the investigations conducted before 1999, the contamination was localized and the number and location of samples was adequate to characterize the contamination.”*
- *“Since no information regarding the release of PCBs was known, the discovery of the PCB release was unexpected.”*

Section 1.4 will be revised to focus on contamination within the SWDAs.

6. **Comment:** Page 1-5, Section 1.5, Potential Threats to Human Health From Site Contaminants. This section describes contaminants (i.e., Lead, PCBs and Dioxins) as being present in near-surface soils which may leave the reader with the impression that no contaminants exist in deeper soils. To avoid leaving the reader with an inaccurate perception of where contaminants exist, please indicate that contaminants are known to exist at the surface and to depths of at least four feet below ground surface in the SWDAs.

This section also implies that dioxin and methane action levels may not be based on a residential exposure scenario. Please explain why the proposed action levels are appropriate for a residential setting and also clearly state how the Navy intends to achieve the cleanup standard for methane when conducting the removal action.

Sections 1.5.1 through 1.5.3 discuss the contaminants encountered in the SWDAs but also states that these same contaminants are scattered, to a lesser extent, in the areas outside of the SWDAs. This leaves the reader with the impression that the contaminant boundaries within the SWDAs are not well defined and that lead, PAHs and dioxin’s are potentially located throughout the remainder of Site 12 at volumes and concentrations similar to the SWDAs. Please clarify.

- Response:** Please see the response to Water Board General Comment 2 regarding depth of contamination. Section 1.5 will be revised to focus its discussion on contamination within the SWDAs. The proposed action level for dioxin is based on ambient levels, and the DTSC concurred with the proposed action level in 2004 (DTSC 2004). Methane does not have any known toxicological effects according to the U.S. Environmental Protection Agency’s (EPA) Integrated Risk Information System database (<http://www.epa.gov/iris/>) or the State of California Office of Environmental Health Hazard Assessment’s (OEHHA) toxicological database (<http://www.oehha.ca.gov/risk/ChemicalDB>). Risks associated

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

with exposure to methane gas (such as from explosions) are likely to affect the health and safety of humans before toxicological effects become a concern for residential receptors. Therefore, *California Code of Regulations* (Cal. Code Regs.) Title (tit.) 27 requirements are sufficient to protect any humans on site. A flame ionization detector will be used to monitor for methane during the excavation process in the methane-impacted areas. Excavations in these areas will be conducted following strict health and safety protocols. After excavations in the methane-impacted areas are backfilled, temporary wells will be installed and groundwater sampling will be conducted. If sampling results indicate that methane may exist in soil, then a soil gas investigation will be conducted. Soil gas samples will be collected and analyzed for methane after the excavation has been backfilled.

7. **Comment:** **Page 2-1, Section 2.1.1, Site Location and Historic Operations.** This section identifies the known SWDAs in Site 12, including Bigelow Court, but nowhere in the document is it made clear that the planned removal action is intended to address the contamination in Bigelow Court. Please amend this and other appropriate sections of the report to clearly indicate which SWDAs will be addressed under the revised EE/CA. If the Navy does not intend to address the SWDA in Bigelow Court under the revised EE/CA, then an explanation justifying its omission should be provided.

The second paragraph states that Site 12 is an area consisting of grassy lawns, paved roads and residential housing units with backyards. Fenced backyards do exist for the 1100, 1200 and 1300 series housing but not the 1400 series. These units simply have backdoors that open onto grassy common areas.

The fourth paragraph states that aerial photographs were used to identify debris disposal areas on the island and that site investigations were then performed to confirm or deny the presence of debris or specific chemicals of concern. Please specify which investigations the Navy is referring to, what the results were and how they were used in the preparation of the EE/CA. This paragraph also mentions an extension of the storage yard but does not describe the location of the extension. Please describe the location of the storage yard extension and include a figure that depicts its boundaries.

The fifth paragraph states that EPA identified a “waste” incinerator in the 1231/1233 SWDA and the residue from the incinerator was likely scattered throughout the area prior to construction of the housing. To avoid leaving the reader with the wrong impression, please be more specific when describing the type of an incinerator that operated in this area. It is DTSC’s understanding that the

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

incinerator was used for paper documents only and not hazardous wastes such as petroleum products or other discarded materials from on-base maintenance or construction activities.

The sixth and seventh paragraphs of this section describe historical features in Site 12 (debris mounds and a large dark area) without thoroughly discussing their relevance. Please further discuss these features and provide the basis for not further evaluating these potential areas of concern. Please also provide any and all figures or photographs that depict their locations in Site 12.

The eighth paragraph states that *“During the grading, some of the solid waste material around the bunkers likely was spread over a moderately larger local area.”* Again, this statement could leave the reader with the impression that contaminants could be spread throughout Site 12 at concentrations and volumes similar to those known to exist within the SWDAs. Please clarify.

Response: Bigelow Court is evaluated in the revised EE/CA. Figure 2-3 outlines Bigelow Court as one of the SWDAs, and Appendix E (Cost Opinions) outlines quantities and costs for the removal action to be conducted at Bigelow Court. The revised EE/CA will be revised to clearly state that Bigelow Court is included as part of the evaluation in the revised EE/CA.

The EE/CA will be revised to reflect DTSC’s comment on the 1400 series buildings.

The DoN’s investigations to detect the presence of debris or specific chemicals of concern are described in Section 2.2.1 (Section 2.6 of the Revised) of the revised EE/CA. The DoN also reviewed aerial photographs as described in Section 2.1.1 (Section 2.1 of the Revised EE/CA). Section 2.1 will be revised to discuss how the review of aerial photographs helped to identify areas to focus investigations and the results. The forthcoming RI Report will provide the complete results of the review of aerial photographs.

The DoN will revise the text that discusses the storage yard.

The reference to the incinerator was from an EPA analysis of photographs (EPA 1995). No further documentation on what was used in the incinerator was found. However, based on the known types of activities conducted and the types of burned debris (such as wood, ceramics glass, and solid waste) found at the site, it is likely the incinerator was a trash incinerator.

The intent of Section 2.1.1 (Section 2.1 in the Revised EE/CA) was to provide the reader with a brief history of the site. More detailed information on the history of the site can be found in an EPA document

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

entitled “Aerial Photographic Analysis of Naval Station Treasure Island” (EPA 1995). Also, Figures B-1 through B-8 clearly show that, after the aerial photographs were taken, significant sampling was performed after to develop a comprehensive understanding of Site 12. This information will be added to the revised EE/CA. More detailed information on sampling activities and site history will be provided in the RI Report currently being developed for Site 12.

The following sentence was deleted from the 8th paragraph because the prior paragraph already describes the grading process:

- *“During the grading, some of the solid waste material around the bunkers likely was spread over a moderately larger local area.”*

8. Comment: Page 2-4, Section 2.2.1, Previous Investigations

1999 – Please see comment number five above.

2001 – Please discuss the results of the VOC contamination near Building 1323 and why it is no longer a concern.

Response: The second sentence under the 2002 paragraph will be revised to state the following: *“Result of this investigation indicated that methane was no longer present at concentrations exceeding the screening criterion at most of the locations (including Building 1323).”* Based on the 2002 results, methane was determined not to be a concern in those areas. The results from the soil gas investigation conducted in 2002 (Tetra Tech EM Inc. 2003) showed soil gas samples collected from either side of the road, directly in front of Building 1323, exhibited elevated concentrations of 1,1,2,2-tetrachloroethane. These areas of elevated concentrations fall within the SWDAs and will be addressed by the removal action. In addition, indoor air samples were collected from Building 1323 and the results indicated elevated concentrations of chloromethane. However, because concentrations of chloromethane detected in soil gas were relatively low, soil gas does not appear to be a source of the chloromethane detected in indoor air (Tetra Tech EM Inc. 2003). The DoN will further evaluate the potential risk from vapor inhalation in the forthcoming RI Report.

9. Comment: Page 2-7, Section 2.2.2, Previous Removal Actions. This section states that dioxins were removed as a part of the removal action at Buildings 1207 and 1209 but that they were not detected above the US EPA Preliminary Remediation Goals (PRGs). Is this correct? DTSC believes that dioxins have been detected at concentrations exceeding the US EPA PRGs near Buildings 1207/1209.

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

The second paragraph suggests that Building 1133 is currently within a SWDA and that there may be contamination present at unsafe levels. To avoid confusing the reader, please provide some context about the location of Building 1133 and its relationship to the known contamination in SWDA A&B.

Response: The DoN will revise Section 2.2.2 to acknowledge that dioxins were detected at concentrations exceeding the EPA Region 9 residential preliminary remediation goal (PRG) of 3.8 nanograms per kilogram (EPA 2000) and that these elevated concentrations were removed during the time-critical removal action.

Additional information will be provided in the revised EE/CA to state that a removal action already occurred in the rear and sides of Building 1133 to address the area of elevated concentrations within SWDA A&B and that this planned removal action will not address this area. However, other areas within SWDA A&B will be excavated as part of this removal action.

10. **Comment:** Page 2-9, Section 2.3, Source, Nature and Extent of Contamination. The first sentence of this section states that *“Based on the results of previous and current investigations, chemical- and solid waste-contaminated soil has been identified in the four SWDAs and in other areas of Site 12.”* This again implies that concentrations and volumes of contaminants similar to those known to exist in the SWDAs may be found throughout the rest of Site 12. Please clarify.

The third and fourth paragraphs of this section also contains language that implies that contaminants could be found throughout Site 12 similar to that found in the SWDAs.

It should also be noted that chlordane was routinely detected around building foundations and was likely due to the routine application for termite control.

Response: Section 2.3 (Section 2.6 of the Revised EE/CA) will be revised to focus discussions on the SWDAs. The comment on the second bullet is noted, and the information will be added to the section.

11. **Comment:** Page 2-11, Section 2.4.4, Risk Screening Evaluation. Each of the bulleted items in this section discusses the contaminants encountered in the SWDAs but also states that these same contaminants are present in and near the SWDAs in surface soils at concentrations above residential PRGs. This leaves the reader with the impression that the contaminant boundaries within the SWDAs are not well defined and that lead, PAHs and dioxin’s are potentially located

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

throughout other areas of Site 12 at volumes and concentrations similar to the SWDAs. Please clarify.

Response: Section 2.4.4 (Section 2.8.4 of the Revised EE/CA) will be revised to focus on the SWDAs.

12. **Comment:** Page 2-12, Section 2.4.5, Evaluation of the Protectiveness of a Soil Cover or Hard Physical Barrier. In reviewing Section 2.4.5 and subsequent risk related sections, DTSC staff were unable to determine how the Navy's qualitative evaluation assessed the protectiveness of removing the top 2 feet of soil, the top 4 feet of soil or the placement of a hard physical barrier at the surface. In order to assess the adequacy of the Navy's evaluation and the potential effectiveness of each of the alternatives, a thorough discussion of how the Navy qualitatively ranked the protectiveness of each alternative needs to be presented.

This section also states that risks to utility workers conducting maintenance or construction activities, within the SWDAs, will be evaluated separately in the Site 12 Remedial Investigation Report. Without an understanding of the risk posed by conducting utility work in the SWDAs, DTSC is unable to evaluate the effectiveness of each of the proposed alternatives. To the extent possible, the Navy needs to present the potential risk to future utility workers, both for maintenance and new construction, and evaluate the relative reduction of risk under each of the proposed alternatives.

Response: Text will be added to the revised EE/CA to clarify the difference between the alternatives in terms of protectiveness. The proposed soil action levels apply to the direct contact pathway to a resident and, because of lower exposure durations, the potential risk to a utility worker from direct contact with soil would not exceed the risk to a resident. However, the DoN is aware that additional exposure pathways could contribute to the risk to a utility worker, including direct contact with groundwater. The overall potential risk to a utility worker will be evaluated in the forthcoming RI Report. After the removal action is completed, the risks in these areas will be recalculated and presented in the FS Report. Please see the response to DTSC Specific Comment 3 and Water Board General Comment 1.

13. **Comment:** Page 3-1, Section 3.1, Statutory Framework. It may be more accurate to use the word "input" instead of "participation" in the second sentence of the second paragraph of this section.

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

The fifth paragraph of this section implies that contaminants potentially exist throughout all of Site 12 at concentrations that warrant a removal action. Please clarify.

Response: The word “input” instead of “participation” will be used in the Revised EE/CA. The second sentence of the fifth paragraph will be revised to state: *“The proposed removal action is intended to reduce the threat of human exposure to chemical- and solid waste-contaminated soil within the SWDAs at Site 12.”* The entire section also will be revised to focus its discussion on the SWDAs.

14. Comment: **Page 3-2, Section 3.2, Determination of Removal Scope. This section indicates that the removal action is intended to restrict the pathway for residential human exposure to hazardous substances in soil at Site 12. The EE/CA also needs to address the potential exposure of future utility workers.**

Response: Please see the response to DTSC Specific Comments 3 and 12 and Water Board General Comment 1.

15. Comment: **Page 3-2, Section 3.3, Determination of Removal Schedule. As a part of selecting a preferred alternative, DTSC will need to review all comments made on the EE/CA by the public and local, State and Federal regulatory agencies, including the City of San Francisco. This review will enable DTSC to evaluate community and agency acceptance of the proposed alternatives which will then allow for the selection of a preferred alternative. Therefore, DTSC request that the Navy forward all comments made on the EE/CA to DTSC for review shortly after the close of the public comment period.**

Response: The comment is noted, and all comments made on the revised EE/CA will be forwarded to the DTSC after the close of the public comment period.

16. Comment: **Page 3-6, Section 3.5, Removal Action Objectives. For known lead releases at Naval Station Treasure Island, DTSC has and continues to use the 400 mg/kg cleanup goal as a ceiling value, not as an average concentration.**

The protection of utility and construction workers needs to be added to this section.

Response: The remedial action objectives (RAO) and confirmation sampling requirements will be clarified to state that the maximum allowable level of lead will be 400 milligrams per kilogram (mg/kg). Utility and

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

construction workers under current land use conditions will be added to this section.

17. **Comment:** Page 4-1, Section 4.0, Identification and Analysis of Removal Action Alternatives. Please see comment number two above.

Response: Please see the response to DTSC General Comment 2.

18. **Comment:** Page 4-2, Section 4.1, Excavation. This section discusses the various soil removal alternatives and concludes that all of the alternatives would provide adequate long-term protection for a resident or other recreational user. However, alternatives 1 and 3 only provide for the removal of soils in areas where no hardscape exist, which will result in contaminants being left in place at the surface and around utility lines within hardscaped areas. This suggests that future utility work, in hardscaped areas, could result in worker exposures. To address this issue, please discuss the appropriateness of using ICs to manage contaminants left in place, as a component of any alternative, and how they would be designed and managed to protect workers installing or maintaining utilities in the future.

Furthermore, none of the proposed alternatives address the possibility of worker exposure to contaminants if new utility lines are installed at locations not previously remediated. DTSC considers this a likely scenario and believes that it needs to be evaluated and factored into the overall evaluation of the protectiveness of each of the proposed alternatives.

In alternatives 3 and 4, the Navy has proposed excavation down to the mean higher high water (MHHW) instead of four feet below ground surface, as in the EE/CA from 2002. DTSC staff were previously unaware of this proposal and question it's purpose. The Navy has previously conducted removal actions in Site 12 to depths of four feet below ground surface, even in the lowest lying areas where groundwater can be encountered at 2.5 feet below ground surface, and without substantial difficulty (i.e., Bldgs. 1207/1209 and 1133). Without a well substantiated technical reason for not going to 4 feet below ground surface, DTSC is unable to agree that MHHW should be the excavation criteria for alternatives 3 and 4.

This section also indicates that the lateral extent of the common area SWDA excavations would be set by the presence of chemical and physical hazards in the sidewalls, as determined by confirmation sampling. DTSC believes that confirmation samples in the bottom of the excavation are also necessary to determine if contaminants remain

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

above the established action levels. Confirmation results from the bottom of the excavation could then be used to support the boundaries of any necessary institutional controls.

Section 21140 of Title 27, California Code of Regulations is cited by the Navy as the basis for two feet of cover in the common areas within the known solid waste disposal areas. DTSC acknowledges the appropriateness of citing Title 27 as an ARAR for landfill closures but in the case of Site 12, additional justification for the Title 27 guidelines needs to be provided. The Title 27 regulations were designed, in part, to protect the public from coming into contact with residual waste materials at solid waste landfills but it is not clear that they were intended for a residential setting like Site 12. It is also not clear that the Title 27 requirements were designed to address CERCLA constituents, especially when some of the constituents in the SWDAs exceed hazardous waste levels at the ground surface.

In citing Title 27 regulations the Navy omitted other potentially relevant sections that may be appropriate for Site 12, such as the post-closure and maintenance requirements for a final soil cover. Therefore, please include an analysis of the additional Title 27 sections that may be appropriate for addressing Site 12 and further discuss the Navy's basis for proposing a two foot soil cover and how it was determined that it would suffice for the long-term protection of human health.

DTSC also understands that excavation of soils in the SWDAs will involve surveying for radiological sources, however, no discussion of this component was found in the EE/CA. To evaluate the Navy's proposal for radiological surveys in the SWDAs, a general description of the anticipated soil surveying process, along with the associated costs, needs to be included in the EE/CA. This will allow the reader to determine if the surveying techniques will satisfy regulatory protocols, how the surveys will be conducted and integrated into the removal actions, and whether there is adequate funding to conduct the surveys. Without this information, DTSC will be unable to assess the overall implementability of each of the proposed alternatives.

Response: Please see the response to DTSC Specific Comments 3 and 12 and Water Board General Comment 1 about utility workers.

Please see the response to Water Board General Comment 2 on the excavation depth.

The DoN will agree to collect post-excavation samples at the bottom of the excavation. If results indicate cleanup criteria have been achieved,

RESPONSES TO COMMENTS FROM DTSC (CONTINUED)

then the excavation will not progress any deeper. Excavation will occur to a maximum depth of 4 feet bgs.

The DoN conducted an analysis of additional Title 27 sections and will include the substantive provisions of Cal. Code Regs. tit. 27, Section (§) 21190 as being a potential action-specific applicable or relevant and appropriate requirement (ARAR) for Site 12.

Information on conducting radiological surveys during the removal action, along with anticipated costs of the survey, will be provided in the Revised EE/CA.

RESPONSES TO COMMENTS FROM TIDA

General Comments

- 1. Comment:** **Depth of Excavation.** Under Alternatives 3 and 4, the Navy proposes to excavate to the depth of the mean higher high water (MHHW). In the September 2002 Draft Engineering Evaluation/Cost Analysis, similar alternatives were developed where excavation was proposed to a depth of 4 feet. As discussed in comments prepared by Geomatrix, the Revised EE/CA does not provide a clear technical justification for using MHHW as a basis for establishing excavation depth. In the absence of a clear justification for excavation to MHHW, we recommend that Alternatives 3 and 4 include excavation to a depth of 4 feet.

Response: Please see the response to Water Board General Comment 3.

- 2. Comment:** **Managing Institutional Controls.** For each of the alternatives under consideration in the Revised EE/CA, differing amounts of residual soil contamination will remain in place. The Authority understands that it is the Navy's intent, with the agreement of the regulators, that no further physical remedial action will be required at Site 12 following implementation of the removal action selected pursuant to the Revised EE/CA. Provided this turns out to be the case, each alternative proposed in the Revised EE/CA would require an institutional control (IC). While such ICs may be addressed in the future as part of the final remedy selected for Site 12, the relative costs of long-term management of the ICs associated with each alternative proposed in the Revised EE/CA should be analyzed at this stage. Waiting until the evaluation of the final remedial alternatives for analyzing IC-related costs would delay consideration of these costs until after the time when they may be meaningfully included in the analysis of excavation alternatives at Site 12. Therefore, the cost opinions in Appendix G should include costs for the long-term burden for managing contaminated soil that will remain in place under each alternative. The cost opinion for each alternative does include \$35,000 for design of land use controls; however, it is important to consider the total long-term cost burden for leaving contaminated soil in place. The Authority anticipates that this burden will be greater for alternatives that leave the most contaminated soil in place. The Authority made a similar comment after reviewing the September 2002 Draft EE/CA and the Navy responded that the property recipient would be responsible for implementing and managing ICs. While these agreements have yet to be developed between the Authority and the Navy, we continue to maintain that the costs for long-term management of contaminated soil left in place must be considered when comparing alternatives, regardless of who will be responsible for bearing these costs.

RESPONSES TO COMMENTS FROM TIDA (CONTINUED)

Section 4.0 identifies five components that are common to all alternatives -excavation, off-site disposal, restoration, post-closure monitoring, and institutional controls - but a subsequent discussion of ICs is absent. The document needs a section that discusses what will be required to implement and manage ICs and each alternative should discuss the long-term burden for maintaining the ICs.

Response: Please see the response to Water Board General Comment 2 and Specific Comment 2 on ICs. The costs presented for the alternatives are meant to reflect the relative change in the magnitude of costs between the alternatives with a margin of -30 to +50 percent. A conservative assumption is contaminated waste will remain in place for each alternative, so the ICs are going to be the same for every alternative. As a result, adding in costs for ICs will provide little added value in the determination of the preferred alternative. Sitewide ICs will be fully evaluated in the forthcoming RI Report.

3. Comment: **Preferred Alternative. In reviewing the alternatives under consideration, the Authority must consider its role as prospective property owner and the health and safety needs of existing and future residents, utility and maintenance workers. The Authority supports the decision that remedial action needs to occur in the SWDAs within Site 12. For the reasons outlined in this letter and further discussed in comments prepared by Geomatrix, the Authority prefers a modified version of Alternative 4, where chemical- and solid waste-contaminated soil in solid waste disposal areas (SWDAs) would be removed to a depth of 4 feet (rather than MHHW, as currently proposed), including contaminated soil beneath hardscape. Such an alternative would minimize the likelihood that future residents and workers would be exposed to contaminated soil. At the same time, this modified version of Alternative 4 would establish a consistent depth of excavation, which would further increase the protectiveness of this alternative by creating an easily identified, uniform removal depth in the SWDAs.**

Of the alternatives presented in the Revised EE/CA, Alternative 4 provides the greatest level of protection for future receptors and leaves the least long-term future liability for the Authority. Alternatives 1 and 3 do not include removal of soil beneath hardscape and do not eliminate potential exposure for future utility workers who are required to maintain and repair utilities beneath streets and other hardscape. Although Alternatives 1 and 2 (excavation to a depth of 2 feet) include excavation to 6-inches beneath existing utilities, these alternatives would not eliminate potential exposure during installation of new utilities or planting of deeper-rooted landscaping (e.g., trees)

RESPONSES TO COMMENTS FROM TIDA (CONTINUED)

below a depth of 2 feet. **Alternative 5 (capping the entire SWDAs with poured in place concrete) is least acceptable to the Authority because (1) it leaves all contamination in place, (2) it would make the existing housing very undesirable for future reuse and (3) it would effectively shift to the Authority all of the Navy's long-term future liabilities.**

Response: The comment is noted. According to BRAC legislation, monies are not to be spent to improve property that is to be transferred. It is the BRAC Project Management Office's position that hardscape provides a protective exposure barrier eliminating exposure. However, through the evaluation of removal actions as a remedial alternative in the revised EE/CA, it has been determined that the poor quality of the roads within the SWDAs cannot be considered hardscape that could be considered a permanent remedy as an effective protective exposure barrier. To ensure protectiveness for human health, the DoN proposes to change Alternative 3 to remediate the SWDAs to a maximum depth of 4 feet bgs, including beneath the roads on Westside Drive in SWDA A&B and beneath Bayside Drive in SWDA 1207/1209 (excluding the driveway concrete hardscape).

4. Comment: **Public Communication. Because the selected Revised EE/CA removal action may involve relocation of some residents, the Authority believes that it is imperative for the Navy to develop a clear plan for communicating relevant information to these residents in a timely fashion. We believe that direct communication with these residents should begin prior to release of the Revised EE/CA for public comment, as they may be most interested in providing input regarding the potential alternatives. The Authority, working in collaboration with its residential property manager the John Stewart Company, would like to work with the Navy to develop a communication plan for these residents.**

Response: The Draft revised EE/CA was initially presented to the RAB on June 20, 2006, a few days after the Draft Revised EE/CA was released. It is one of the DoN's top priorities to ensure the residents of the housing area are informed and the removal action is as transparent as possible, not only to the affected residents, but to the general public as well. The DoN plans to hold a public information session, as well as publishing an EE/CA fact sheet, as part of the public involvement process. As the actual removal action date comes closer, the DoN will provide further public information on the work in a timely manner. The DoN will also maintain a dialog with TIDA and the John Stewart Company to properly inform residents who may be temporarily affected or displaced as a result of the removal action.

RESPONSES TO COMMENTS FROM TIDA (CONTINUED)

5. **Comment:** **Scope of the Revised EE/CA.** The Authority recommends that the scope of the Revised EE/CA be expanded to include completion of removal actions at Halyburton Court. This approach will provide a clear interim process that will allow for completion of the removal action and reuse of the housing prior to completion of the entire CERCLA process.

Response: As scoped in December 2005, this revised EE/CA focuses on the SWDAs. The contamination at Halyburton Court will be evaluated in the RI Report that is currently being prepared for Site 12, and a final remedial alternative for the site will be developed in the subsequent FS Report for Site 12.

November 15, 2006 Comments

1. **Comment:** **Preferred Alternative.** In reviewing the alternatives under consideration, the Authority must consider its role as prospective property owner and the health and safety needs of existing and future residents, utility and maintenance workers. The Authority supports the decision that remedial action needs to occur in the SWDAs within Site 12. For the reasons outlined in this letter and further discussed in comments prepared by Geomatrix, the Authority prefers Alternative 4, where chemical- and solid waste contaminated soil in solid waste disposal areas (SWDAs) would be removed to a depth of 4 feet, including contaminated soil beneath all hardscape, including concrete. Such an alternative would minimize the likelihood that future residents and workers would be exposed to contaminated soil.

Response: Comment noted.

2. **Comment:** **Least Acceptable Alternative.** Alternative 5 (capping the entire SWDAs with poured in place concrete) is least acceptable to the Authority because (1) it leaves all contamination in place, (2) it would make the existing housing very undesirable for future reuse and (3) it would effectively shift to the Authority all of the Navy's long-term future liabilities. The Authority cannot support this alternative.

Response: Comment noted.

3. **Comment:** **Replacement of Road Paving Under Alternative 3.** We are pleased that Alternative 3 includes excavation of soils to a depth of 4 feet under paved roads. However, the Revised EE/CA indicates the paved roads will not be re-paved after remediation, but will instead be covered with compacted gravel. The Authority has maintained an interest in exploring the feasibility of re-occupying the currently

RESPONSES TO COMMENTS FROM TIDA (CONTINUED)

vacant housing units since the beginning of the EE/CA process. Replacing paved roadways with compacted gravel would make re-occupation of these units challenging and would add an impediment to the Authority's ability to manage and maintain the property in a manner consistent with the Cooperative Agreement.

Response: Comment noted.

RESPONSES TO COMMENTS FROM GEOMATRIX

General Comments

1. **Comment:** Removal Action Objective. The stated removal action objective (RAO) in Section 3.5 is to “Restrict the potential for a resident to contact chemical-contaminated soil near the ground surface within the SWDAs at Site 12.” Given that “the removal action is intended to be consistent with the final remedy for Site 12” (first paragraph of Section 1.1), we believe the ROA should be broadened to include protection of all potential human and ecological receptors (not just residents) and should include other contaminated media (soil vapor and groundwater).

Response: The DoN concurs with the first sentence in the comment. “Resident” will be replaced by “human” in the RAO, and the RAO will be revised to be applicable to current site conditions. As was outlined in Section 2.4.7 (Section 2.8.7 of the Revised EE/CA), a Screening-Level Ecological Risk Assessment (SLERA) was conducted in March 2006 as part of the ongoing RI of Site 12. Other contaminated media (such as groundwater and soil vapor) also will be evaluated in the forthcoming RI Report.

2. **Comment:** Depth of Excavation for Alternatives 3 and 4. Under alternatives 3 and 4, the Navy proposes to excavate to the depth of the mean higher high water (MHHW). We have two comments with respect to this proposal.

- The document does not provide a clear definition of MHHW nor does it reference MHHW to an established datum. The only definition of MHHW that we could find in the document was on Figures F-1 through F-3 (Appendix F) where a note indicates that “MHHW is 6.22 feet above mean lower low water (MLLW).” However, there is no definition of MLLW. We assume the document is referring to tidal elevations at some station, however, this information needs to be provided.
- The document does not provide the technical justification for using MHHW as a basis for establishing excavation depth. In the September 2002 Engineering Evaluation/Cost Analysis (EE/CA), similar alternatives were developed where excavation was proposed to a depth of 4 feet. Based on Table F-1 in Appendix F, the average excavation depths will now be between approximately 2 and 3 feet below the ground surface (bgs), rather than 4 feet bgs. It is unclear why a change has been made. The Navy has successfully completed excavations to a depth of 4 feet at Buildings 1207/1209 (where the Navy now only proposes to excavate to an average depth of approximately 2 feet), at Building 1133 on the

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

north end of SWDA A&B (where the Navy now only proposes to excavate to an average depth of approximately 3 feet), and Halyburton Court adjacent to Bigelow Court (where the Navy now only proposes to excavate to an average depth of approximately 3.1 feet). If the Navy is concerned about encountering groundwater in the excavations, we encourage the Navy to review information from past excavations as well as depth-to-groundwater data from monitoring wells within or adjacent to SWDAs. In the absence of a clear justification for excavation to MHHW, we recommend that Alternatives 3 and 4 include excavation to a depth of 4 feet.

Response: The DoN concurs; please see the response to Water Board General Comments 2 and 3.

3. **Comment:** The document does not appear to consider costs for managing institutional controls. The last paragraph of Section 4.0 identifies five components that are common to all alternatives: excavation, off-site disposal, restoration, post-closure monitoring, and institutional controls. However, the following subsections (4.1 through 4.4) only discuss the first four components. The document needs a section that discusses what will be required to implement and manage institutional controls (ICs) and each alternative should discuss the long-term burden for maintaining the ICs. This section should discuss specific sections of Title 27 that apply to managing waste that is left in place beneath a cap. Additionally, the cost opinions in Appendix G should include costs for the long-term burden for managing contaminated soil that will remain in place under each alternative. The cost opinion for each alternative does include \$35,000 for design of land use controls; however, it is important to consider the total long-term cost burden for leaving contaminated soil in place. We anticipate that this burden will be greater for alternatives that leave the most contaminated soil in place. TIDA made a similar comment after reviewing the September 2002 EE/CA and the Navy responded that the property recipient would be responsible for implementing and managing ICs. While these agreements have yet to be developed between TIDA and the Navy, we continue to maintain that the costs for long-term management of contaminated soil left in place must be considered when comparing alternatives, regardless of who will be responsible for bearing these costs.

Response: Please see the responses to Water Board Specific Comment 2 on ICs; DTSC Specific Comment 18 on Cal. Code Regs. tit. 27; and the TIDA General Comment 2 on the cost for ICs.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

4. **Comment:** The Risk Evaluation (Sections 2.4.4 and 2.4.5) does not consider indoor air risk potentially posed by volatile organic compounds (VOCs) and methane. During the June 2000 soil gas investigation, VOCs were detected at concentrations that exceed screening criteria at one location near Building 1323 (Section 2.2.1). The document does not further consider or evaluate the significance of this detection. No explanation is provided for why VOCs were not retained as chemicals of concern (COCs) and no rationale is provided for why vapor intrusion of VOCs or methane is not considered to be a complete exposure pathway (Section 2.4.5.2). The document should include an evaluation of VOCs, and this evaluation should include recent updates of the potential inhalation risk posed by naphthalene. During the 2000 investigation, the Navy did conduct indoor air sampling of selected buildings within SWDA A&B, and this EE/CA should discuss the results of the indoor air sampling that has been conducted. We also suggest adding figures to Appendix B that show the locations of samples that have been analyzed for VOCs and those with exceedances.

Response: The Revised EE/CA is being conducted to address known contamination within the SWDAs and the direct contact exposure pathway from these contaminants under the current site configuration. Concentrations of methane were a known residual contamination that was highlighted for the revised EE/CA to address via soil removal. The evaluation of VOCs, indoor air sampling results, and the determination of risk via inhalation will be addressed in the forthcoming RI Report currently being prepared for Site 12.

5. **Comment:** Methane. In Section 2.4.3, the document proposes a methane action level of “5% by volume in air at property boundary.” Does this action level refer to ambient air? Given that 5% methane is the Lower Explosive Limit, it is not clear that this action level is sufficiently protective. Each of the five alternatives (Section 4.5) includes “excavation of the methane impacted area” as a component of the alternative. It is unclear how this action level will be used during the excavation of the methane impacted area or what will indicate successful remediation. If the source of the methane is below a depth of 2 feet or MHHW, will the Navy extend the excavation to a greater depth to remove the methane source?

Response: The DoN will address methane-impacted soils up to a maximum of 4 feet bgs. Please see the response to DTSC Specific Comment 6.

6. **Comment:** Evaluation of risk posed to aquatic receptors in San Francisco Bay. The document does not discuss impacts to groundwater and the

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

potential for contaminated groundwater to affect aquatic receptors in San Francisco Bay. Given that (1) contaminated soil will be left in place beneath the ground water table under every alternative and (2) this contaminated soil is immediately adjacent to San Francisco Bay in three of the four SWDAs, it is important to demonstrate that this contaminated soil does not pose an adverse risk to aquatic receptors in the Bay. Section 2.2 (Previous Investigations, Removal Actions, and Activities) should be expanded to include a discussion about the results of groundwater investigations and monitoring that have been conducted. Section 2.4.7 (Ecological Risk Assessment) only discusses terrestrial receptors and this section should be expanded to include a discussion about aquatic receptors in San Francisco Bay.

Response: Soil is the only medium of concern addressed by the Revised EE/CA. A section will be added to the revised EE/CA discussing how groundwater and its potential impact to receptors in the Bay will be evaluated in the forthcoming RI Report.

SPECIFIC COMMENTS

1. **Comment:** Executive Summary, page ES-1, first paragraph under Removal Action Objective. The discussion of future uses should be expanded to include all potential future receptors (utility workers, landscape workers) and potential pathways (indoor air).

Response: Please see the responses to Water Board General Comment 1, Water Board Specific Comment 1, and DTSC Specific Comment 1.

2. **Comment:** Executive Summary, page ES-1, last two paragraphs. The second to last paragraph makes reference to “exposure risk” and the last paragraph refers to “potential threat of exposure to human health.” This is not standard risk assessment terminology. The word “exposure” should be removed in both cases. The text should refer to “risk to human health” or “potential threat to human health.”

Response: The DoN concurs, and these two sentences will be revised in the revised EE/CA.

3. **Comment:** Executive Summary, page ES-1, last sentence. The sentence states that “The planned removal action for the chemical- and solid waste-contaminated soil remaining at the SWDAs is not time-critical, because the present risk is relatively low.” The document should

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

provide the justification for why the current risk is considered to be relatively low (e.g., interim measures have been implemented such as fencing to restrict access, capping of occupied backyards).

Response: The DoN concurs, and justification on the low level of present risk will be provided in the Revised EE/CA.

4. **Comment:** Executive Summary, page ES-2, Removal Action Alternatives. The text should explain why excavation to 6 inches beneath utilities is included in Alternatives 1 and 2. Presumably, it is being considered to be protective of future utility workers. Again, this will make more sense if the RAO is expanded to include all potential receptors, not just residents.

Response: Excavation to 6 inches below utilities protects utility workers under current land use conditions and configuration. Please see the response to Water Board General Comment 1 and Specific Comment 1.

5. **Comment:** Executive Summary, page ES-3, second to last paragraph. The last sentence should acknowledge that Alternative 5 will not reduce the on-site volume of contaminated soil.

Response: The revised EE/CA will be revised to include the statement that Alternative 5 will not reduce the on-site volume of contaminated soil.

6. **Comment:** Section 1.2, first paragraph, last sentence. Based on Figure 1-2, it appears that Building 1325 needs to be included in the list of occupied buildings within the SWDAs. It is unclear why the word “primarily” is used to describe other unoccupied buildings within SWDAs. This paragraph should describe interim measures that have been put in place to protect residents of occupied buildings.

Response: The word “primarily” will be deleted from the sentence. Building 1325 will be included in the list of occupied buildings. Interim measures will be discussed in Section 1.2.

7. **Comment:** Section 1.3, second paragraph, first sentence. This sentence states that past operations resulted in the release of chemicals to surface soils. Given what has been found, it appears that most material was disposed in subsurface soil. We note that the construction notes provided in Appendix A indicate that debris was not allowed to be placed above elevation 4 feet or within 1-foot of the finished sub-grade elevation when the housing was constructed. This information would

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

suggest that surface soil is not likely to be contaminated. We also suggest the following edit (shown in italics) to the fourth sentence in the same paragraph: “The mixing, spreading, and grading of the solid waste/fill mixture occurred both within and in some areas outside of the SWDAs...” Figures showing the distribution of debris observed during the 2003 trenching investigation in the common areas (Shaw, 2004) should be included to support the point that solid waste has NOT been found in large areas of Site 12.

Response: Please see the response to DTSC Specific Comment 5. Surface soil contamination has been detected at many locations within Site 12. Additional figures from the trenching investigation (Shaw Environmental & Infrastructure, Inc. 2004) will be referred to, but not included in the Revised EE/CA.

8. **Comment:** Section 1.4, first paragraph. The Navy should review the accuracy of the following statement: “While each phase (of investigation) has identified new areas of concern, sample results from some areas of Site 12 never indicated a cause for concern.” Based on this statement, it appears that the Navy believes that most areas of Site 12 are a cause for concern. Please clarify.

Response: Please see the response to DTSC Specific Comment 5.

9. **Comment:** Section 1.4, page 1-4, first full paragraph. The text here (and in Section 2.2.1, page 2-5) suggests that the Navy was not expecting PCBs to be found in the former storage yard. Given the past use as a storage yard, the release of any chemical was possible and the Navy conducted investigations to evaluate this possibility. We do not understand why the text suggests that the discovery of PCBs was unexpected. These statements appear again on page 2-5 under the heading “1999.”

Response: Please see the response to DTSC Specific Comment 5.

10. **Comment:** Section 1.5.1, Lead Contamination. Please confirm that the lead concentrations that exceed the action level do in fact occur in “near-surface soils” as stated. Also, please define “near-surface soil.” The same comment applies to PCBs discussed in Section 1.5.2 and dioxin and methane discussed in Section 1.5.3.

Response: Please see the response to DTSC Specific Comment 6.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

11. **Comment:** Section 1.5.3, Dioxin and Methane Contamination, first paragraph. The third sentence in this paragraph (“Methane exceedances appear to exist only around Building 1319 in the SWDA”) directly contradicts the last sentence in the same paragraph (“Methane contamination in soil appears to be present both within and outside the SWDAs.”).

Response: Section 1.5.3 will be revised to indicate methane exceedances were found to exist outside of the SWDAs at Northpoint and Gateview Avenue (Tetra Tech EM Inc. 2003). However, it should be emphasized that the revised EE/CA, as per the response to DTSC Specific Comment 5, will focus only on methane-impacted areas within the SWDAs. Because methane concentrations outside of the SWDAs appear to be the result of leaking natural gas lines, the DoN will contact the Public Utilities Commission to resolve the issue.

12. **Comment:** Section 1.6, first paragraph. This paragraph cites the random distribution of “hazardous substances” and the uncertainty of occurrence as the basis for conducting a removal action within the SWDAs. However, “uncertainty” and “random distribution” are conditions that apply in some areas outside the SWDAs, not within the SWDAs. The Navy should revise the text to better justify the basis for conducting the removal action within the SWDAs.

Response: The DoN concurs and will revise the text accordingly.

13. **Comment:** Section 2.1.1, page 2-1, last full paragraph. The text suggests that there were numerous trench-type disposal units and general SWDAs in Site 12 that were then combined into four identified SWDAs. Is this correct? Please clarify.

Response: This is correct. The “Draft RI Report Site 12 Operable Unit” prepared in 1999 (Tetra Tech EM Inc. 1999), identified the following areas of contamination at Site 12.

- The vicinity of Building 1313 near the southwestern shoreline and south of Debris Disposal Area A
- Debris Disposal Areas A and B
- Debris Disposal Areas C and D
- The suspected burn pit area

The forthcoming RI Report will provide more detailed information on the development of the SWDAs.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

14. **Comment:** Section 2.1.1, page 2-2, third to last paragraph. The text discusses the earthwork plans in Appendix A, where the specifications describe mixing soil with rubbish. We note that the specifications also state that only clean soil (no rubbish) should be placed “above elevation +4 feet or above 1 foot below finished sub-grade elevation.” This information suggests that shallow soil should be relatively free of debris. Is this information corroborated by observations from the Navy’s trenching program? If so, this information should be included in the site conceptual model (Figure 1-5) and discussed in the text.

Response: Please see the response to Geomatrix Specific Comment 7.

15. **Comment:** Section 2.1.3, first paragraph. This section describes the nature of solid waste “encountered in borings and trenches during previous investigations.” The text should clarify that solid waste was only encountered in some borings and trenches. To give the reader perspective, the Navy may wish to include figures from the 2003 common area trenching investigation report (Shaw 2004) that show that debris was NOT encountered in a large number of the trenches.

Response: Please see the response to Geomatrix Specific Comment 7.

16. **Comment:** Section 2.2.1, under heading “2000.” The first paragraph should clarify that the buildings being discussed were all immediately adjacent to identified SWDAs. In the second paragraph, clarify that building 1323 and VOCs detected above screening criteria are all within SWDA A&B.

Response: Comment noted, and the DoN will revise the text accordingly.

17. **Comment:** Section 2.2.1, under heading “2001,”second paragraph. We suggest replacing the word “hotspot” with terminology that more accurately describes what was found.

Response: The word “hotspots” will be replaced with “areas with elevated concentrations of contaminants.”

18. **Comment:** Section 2.4, item number (1). The text refers to soil action levels for several contaminants, including methane. The action level for methane is for air or soil vapor, rather than for soil. See General Comment number 5.

Response: Please see the response to Geomatrix General Comment 5.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

19. **Comment:** Section 2.4.1, in-text table. The Health Endpoint for lead should be revised as follows (proposed change in italics): Blood-lead level less than 10 µg/dL at the 95th percentile. This comment also applies to the second paragraph of Section 2.4.4.

Response: The DoN concurs and will revise the sections as suggested.

20. **Comment:** Section 2.4.4, page 2-11. The first paragraph states that the Navy conducted a risk screening evaluation. The reference for this evaluation should be provided. Under the heading “Methane,” the text states that methane is present in and near SWDAs at concentrations above allowable limits. This conflicts with the discussion in Section 2.2.1 (under heading 2002), which states that methane only exceeds the screening criterion at two locations within SWDA A&B.

Response: Section 2.2.1 will be revised to clarify that methane concentrations exceeded the screening criterion at Northpoint Drive and Gateview Avenue (Tetra Tech EM Inc. 2003). Section 2.4.4 outlines the steps for the risk screening evaluation.

21. **Comment:** Section 2.4.5.1. The discussion of potential receptors should include landscape workers. The discussion should be expanded to include other contaminated media besides soil (i.e., groundwater and vapor).

Response: Please see the response to Geomatrix General Comment 1.

22. **Comment:** Section 2.4.5.2, under heading “Residents.” The text suggests that the activities that a resident will engage in will only result in exposure to soil within the upper 1 to 2 inches. A resident could also engage in gardening (under unrestricted use); this activity will result in exposure to soil at depths greater than 1 to 2 inches. Also, we believe that the text from this section should be used in the Executive Summary, rather than the existing text in the Executive Summary that describes residential uses. Finally, the discussion of exposure pathways for residents should include indoor air (VOCs and methane).

Response: The DoN acknowledges that direct contact to soil could occur at depths greater than 1 to 2 inches and has revised this section of the revised EE/CA to reflect this information. Also, please note that the remedial alternatives developed for the Revised EE/CA include removal of the first 2 to 4 feet of soil. The Executive Summary will be revised as requested. Please see the response to Geomatrix General Comment 4 on indoor air.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

23. **Comment:** Section 2.4.5.2, under heading “Utility Workers.” The last paragraph in this section indicates that dermal contact with groundwater and inhalation of volatile constituents will be evaluated in the RI report. We encourage the Navy to consider these and all potential exposure pathways in the EE/CA so that the selected remedy for the SWDAs likely will be the final remedy for these areas.

Response: Please see the response to DTSC Specific Comment 4.

24. **Comment:** Section 2.4.6. The fate and transport discussion should include VOCs.

Response: Volatile organic compounds (VOC) are not part of the objectives of the planned removal action and will not be discussed in the revised EE/CA. VOCs will be evaluated in the forthcoming RI Report.

25. **Comment:** Section 2.4.7. The text describes certain terrestrial ecological receptors that “have not been observed to spend time at Site 12.” The report should document who conducted the observations and provide a reference for where this information is documented.

Response: The following text was added to the Revised EE/CA:

“Based on discussions from the September 2005 BCT meeting, the Navy has recently conducted a SLERA to evaluate risk to terrestrial receptors from contaminated soil at IR Sites 6, 12, 21, 24, 30, 31, 32, and 33 (SulTech 2006b). A site visit to conduct an ecological survey was performed in March 2006, and results of the survey confirmed that habitat at IR Site 12 consists of residential areas with multi-family houses, landscaped lawns, and landscaped vegetation. The ecological survey completed during the site visit is provided in Appendix A of the SLERA (SulTech 2006b).”

The SLERA determined that Site 12 does not provide quality ecological habitat that can sustain a population, including sufficient area for breeding and foraging. There is no complete exposure pathway to relevant ecological receptors from contaminated soil at Site 12.

26. **Comment:** Section 3.5. The text notes that the action level for lead (400 mg/kg) has been previously accepted by the Navy and DTSC as the preliminary cleanup goal for average lead concentrations for previous Site 12 removal actions. This statement is also true for the action levels proposed for PCBs and PAHs and we believe it is prudent to include a similar statement for these COCs. It also would be helpful to state that DTSC has concurred with the ambient dioxin concentration that is proposed as the dioxin action level.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

- Response:** Comment noted, and the DoN will revise accordingly.
27. **Comment:** **Section 4.0, bottom of page 4-1.** The text should provide the rationale for excavating 6 inches below utilities within context of the RAO.
- Response:** Section 4.0 of the revised EE/CA will be revised to provide the rationale for excavating below utilities.
28. **Comment:** **Section 4.1, bottom of page 4-2.** The last sentence refers to “interim restrictions, followed by ICs,” that would be put in place to address excavated soils during necessary maintenance activities. Please clarify what is meant by “interim restrictions” and what these restrictions will entail.
- Response:** Section 4.1 of the revised EE/CA will be revised to describe the possible interim restrictions.
29. **Comment:** **Section 4.1, bottom of page 4-3.** The last sentence on this page describes collection of confirmation sidewall samples. We believe the excavation bottom samples also should be collected to document the location and concentration of contaminated soil that will remain in place. This information will be useful for long-term management of contaminated soil that is not removed. The cost opinions should also include costs for collecting excavation bottom samples.
- Response:** Please see the response to DTSC Specific Comment 18. The cost opinion in the revised EE/CA will be revised to reflect the collection of bottom samples.
30. **Comment:** **Sections 4.5.2.1 and 4.7.2.1.** These sections should discuss the effectiveness of using hardscape as a cap for overall protection of human health and the environment.
- Response:** The effectiveness of using hardscape as a cap for overall protection of human health and the environment is discussed in Section 2.4.5
31. **Comment:** **Section 4.5.2.5.** The text does not discuss the possibility that some residents may have to be relocated under Alternative 1. This possibility was discussed under Alternatives 2, 3 and 4 and it also appears relevant for Alternative 1.
- Response:** The possibility of temporarily displacing residents will be incorporated into the discussions of Alternative 1.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

32. **Comment:** Section 4.6.2.1, last sentence. Please clarify the portion of the sentence that reads “...and additional pathways being broken for the shallow utility and road worker.”
- Response:** The last sentence will be clarified, as additional utilities are being addressed under hardscape areas.
33. **Comment:** Section 4.9.1. The description of Alternative 5 (which includes excavation of the methane impacted area) should explain why a gas venting system is necessary.
- Response:** The following text will be added to the revised EE/CA:
- “Current soil gas and trenching results indicate the presence of solid waste and methane within the SWDAs. Once covered by an impermeable barrier, concentrations of methane may build up below the ground surface, thereby creating a potential explosion hazard for construction or utility workers. Therefore, gas vents would be installed within the SWDAs to prevent the buildup of methane below the cap. The vents will be passive and provide an escape pathway for any methane buildup (no matter how small or unlikely) to escape from below the ground surface.”*
34. **Comment:** Section 4.9.2.1. The text only discusses the poured-in-place concrete cap covering the backyards for Alternative 5. We understand that the cap will also cover common areas.
- Response:** The detailed description of the alternative (see Section 4.9.1) indicates that the entire SWDA would be covered by hardscape, and the cost opinions were developed with that concept in mind. The DoN will clarify this information in Section 4.9.2.1.
35. **Comment:** Section 4.9.2.3. This section only discusses long-term protection of a concrete cap for a resident. It should also discuss long-term protection for other receptors, such as utility workers.
- Response:** The DoN will add a discussion of the utility worker in this section.
36. **Comment:** Section 5.0. There are numerous inconsistencies between the text and the scoring presented in Table 5-1. The text and table should be carefully reviewed to identify and remove these inconsistencies.
- Response:** The DoN will correct any inconsistencies.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

37. **Comment:** Section 5.1.1. We do not concur that Alternatives 1, 2, 3 and 5 are only "slightly" less protective than Alternative 4.

Response: Comment noted.

38. **Comment:** Section 5.1.5. This section only discusses potential relocation of residents under Alternative 4. Based on previous text, it appears that relocation of some residents could occur under Alternatives 1 through 3 also.

Response: The DoN will clarify this in Section 5.1.5.

39. **Comment:** Section 5.3. This paragraph in this section indicates that costs for the five alternatives range from \$0 to \$13.6 million. It appears that the lowest cost alternative is \$4.3 million, not \$0.

Response: The DoN will revise this sentence as noted.

40. **Comment:** Section 6.0. The text states that each alternative will be effective in protection of human health. However, the text should acknowledge that they are not equally effective, as discussed in Section 5.1.3.

Response: Comment noted.

41. **Comment:** Figure 1-2. This figure identifies all backyards outside SWDAs as being included in the EE/CA. It appears that this figure was not updated from the 2002 EE/CA.

Response: The figure was updated from the 2002 revised EE/CA, and the DoN will further revise the figure as noted.

42. **Comment:** Figures in Appendix B. The figures should explain the significance of the concentrations cited in the legend (they are the action levels presented in this document).

Response: Comment noted.

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

43. **Comment:** Cost Opinions in Appendix G. The cost opinions should include contingencies on annual costs. Additionally, a 10% scope contingency appears to be too low. EPA recommends a scope contingency for 15-55% for excavations (A Guide to Developing and Documenting Cost Estimates During the Feasibility Study, EPA 540-R-00-002 OsWER 9355.0-75, USACE/U SEPA, July 2000).

Response: Previous DoN experience and appropriate guidance documentation was used for developing costs for the revised EE/CA. Based on the DoN's experience doing similar type work, a 10 percent scope contingency is appropriate.

November 7, 2006 Comments

General Comments:

1. **Comment:** The document states that the Navy has responsibility for identifying federal Applicable or Relevant and Appropriate Requirements (ARARs) and the Department of Toxic Substances Control (DTSC) has responsibility for identifying state ARARs (Section 3.4). As such, the document only presents federal ARARs, except in a discussion of action-specific ARARs for capping of backyards. In this discussion, the document cites certain requirements in Title 27 of the California Code of Regulations as action-specific ARARs for intermediate cover of solid waste disposal areas (SWDAs). It is unclear why California ARARs were only identified for one particular action (capping of backyards).

Response: The DoN has identified state ARARs that are known to be typically submitted by state agencies. Over the years, the DoN has responded to ARARs issues through responses to regulatory agencies' comments. Additional state ARARs will be identified during the RI/FS process for the entire site.

2. **Comment:** It is important to recognize that other components of various proposed remedies (most notably leaving solid waste and affected soil in place) also may be subject to requirements of Title 27 or other State ARARs that are not cited. We also wish to clarify that the enforcement agency has considerable latitude in determining which requirements of Title 27 may apply in whole or in part. Based on past input from DTSC and the California Integrated Waste Management Board, it is unclear how (or whether) the specific requirements of Title 27 will be used to address any waste or affected soil left in place (e.g., below hardscaping, below a depth of 2 feet in common areas).

RESPONSES TO COMMENTS FROM GEOMATRIX (CONTINUED)

This is an unresolved issue that has potential long-term implications for the City that should be considered prior to transfer of the parcel.

Response: Comment noted.

RESPONSES TO COMMENTS FROM THE RAB (DALE SMITH)

General Comments

1. **Comment:** I understand that the Navy must follow the reuse plan submitted some years back when determining cleanup levels. However, we now know that this area is not to be occupied in the future because of Tidelands Trust restrictions. As I understand it, no development can take place within 100 feet of the shore. Thus, there is no reasonable need for excessive remediation. This land is designated open space/marsh for future use. The Navy should therefore provide a sound, impermeable cap to protect current residents of the areas from exposure (Alternative 5). The dioxin contaminated area should be fully remediated with all contaminated soils removed to a landfill. The methane impacted area likewise should be fully remediated. Otherwise, a cap will be fully protective for the brief period that the sites will be occupied.

Response: Comment noted. The DoN is evaluating alternatives in terms of both protectiveness and the period of years that the site will remain in residential use, including some uncertainty as to when the residential use will actually end. Capping although protective, would be a significant change from the current predominantly landscaped residential area and needs to be taken into consideration when evaluating the alternatives.

Specific Comments

1. **Comment:** 2-2: Reference to an aerial photo from 1963 is made but the photo is not included.

Response: The DoN only provided a few select historical aerial photographs in the revised EE/CA, and the 1963 photograph was not included because it relates to areas outside of the SWDAs. All available aerial photographs for Site 12 will be included in the forthcoming RI Report.

2. **Comment:** 2-3: The solid waste found at Building 1219 is not shown on the figures.

Response: Although waste material was found near Building 1219, the associated low concentrations of contaminants do not warrant it being classified as an SWDA and targeted for a removal action. This area will be evaluated in the forthcoming RI Report.

3. **Comment:** 2-7, 2-15: Contaminant migration is not clearly addressed as to whether or not any reaches the Bay and groundwater flow direction is

RESPONSES TO COMMENTS FROM THE RAB (DALE SMITH) (CONTINUED)

not indicated. Greater clarity concerning the direction of groundwater flow and whether or not contamination has been found to have reached the Bay would better support the Navy's conclusions.

Response: The objective of the planned removal action is to address potential risk to humans through direct contact with soil in the SWDAs under the current site configuration. The potential for contaminated groundwater to impact the Bay will be fully evaluated in the forthcoming RI Report.

4. **Comment:** **2-14: Considerable discussion of dermal contact with groundwater by utility workers is made, yet there is no discussion of why there should be contamination associated with that exposure. The chemicals of concern are strongly sorbed to soil. Contact should be consistent with work on utility lines and not particularly significant with the exception of methane exposure.**

Response: In the revised EE/CA, the DoN is considering the potential risk to a utility worker from direct contact with contaminated soil. Potential risk to a utility worker from direct contact to groundwater will be evaluated in the forthcoming RI Report.

5. **Comment:** **2-15 and References: The acronym for Agency for Toxic Substances and Disease Registry is not correct.**

Response: The revised EE/CA text will be revised.

November 11, 2006 Comments

6. **Comment:** **4-3: It is not clear from the text whether or not remediation will eliminate the upward movement of trapped soil gas and/or contaminants in the event there is a seismic occurrence. Will this possibility be removed?**

Response: Except for Alternative 5, all other remedial alternatives discussed in the revised EE/CA will address areas with methane-impacted soil by removing the impacted soil and replacing it with clean material. Alternative 5 includes the placement of passive vents in the ground that would allow for the release of any trapped soil gas over time. Any impacted material left in place below the clean placed soil or replaced hardscape would be subject to movement during a significant seismic occurrence.

RESPONSES TO COMMENTS FROM THE RAB (DALE SMITH) (CONTINUED)

7. **Comment:** **4-4: There appears to be a contradiction between statements here and elsewhere concerning excavation under roadways. Will excavation occur under all roadways or just those in SWDAs A and B and 1207/1209 and in Alternatives 1 and 3 only?**

Response: Except for Alternative 5, excavation beneath roadways will occur in SWDAs A&B and 1207/1209 for all of the remaining alternatives discussed by the revised EE/CA.

8. **Comment:** **Figures B-7 and B-8: Neither figure appears to show sampling locations. Are layers turned off by accident?**

Response: Figures B-7 and B-8 were developed to demonstrate that the dioxin boundary was outside the established SWDAs.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING

Responses to Comments from Emily Rappaport

1. **Comment:** The question I have is, between Alternatives 1, 2, 3 and 4, what would be the time difference? Would it take longer to do the work? Would there be a greater disruption with the deeper digging?

And the second part is, eventually, with the redevelopment, are you going to have to come back again and clean other sites that haven't been cleaned because you're doing around the pads, et cetera?

Response: The revised EE/CA estimated about 3 months for the shallow excavation and about 6 months for the deeper excavation. Accounting for any variances in the actual excavation time frames, it was estimated a 3-month time difference would exist between the shallow and deep excavations. The objective of this cleanup is to make the area safe and suitable for its continued use as a residential area up until the time that it is redeveloped (some point in the future). When the buildings are demolished and any related concreted areas that have not been removed are demolished, then additional cleanup might have to be taken when the property is developed.

Responses to Comments from Eugene MacDonald

1. **Comment:** My question would be about the fresh water utilities. What depth is that? Because if you do the shallow dig, it's still contaminated earth around the pipes, which would mean the lead, dioxins and stuff could get in the water.

Response: Drinking water is regularly tested so that it is safe to use. Pipes are sealed and the potable water system is a pressurized system, so if there is a leak, water would exit the pipes rather than enter.

Responses to Comments from Paoli Lacy

1. **Comment:** Back to her question about time. What is the time frame of how long any of these options takes? Okay. So, it's a difference of a few months. Say, if option one happens, how long would that take? If option four happens, how long would that take? An estimate.

Response: Please see the response to Emily Rappaport's comment.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Responses to Comments from Claudia Franson

1. **Comment:** I live on Bayside right in one of the little green areas. My daughter has high levels of lead already in her blood. And it's from the dirt around our house, apparently, from what we've been told. She's already not allowed to play in the dirt; "Wash your hand." I'm really happy that you're doing this project. It's really important for me. But I'm terrified about the prospect of digging up my whole front, back and side yard and trying to get my daughter to and from the car. She's 17 months old, and she's a Tasmanian devil. She likes to be on the ground.

You may be monitoring dust levels, but I'm terrified of how high her lead is going to be if you're digging it up. And how do you decide who stays in the house or moves out? Children are so much more vulnerable to the lead than adults.

How do you decide who stays or moves or is it safe to live there? When is the decision made?

I'm wondering why certain backyards in my little row have paving stones and certain ones don't. Mine doesn't. Our backyard has lead in it. The front yard has more lead in it. I don't understand why we're picking and choosing backyards. It seems like it's not straight lines that lead is exposed to. So, why are some -- like, a fence separates three feet of property, and houses are here that people are living in, and houses here are fenced off?

So, we had the Department of Public Health come out and sample our front and backyard. Is it then plausible to have paving stones put down in all the backyards as a temporary measure for the next six months before something starts happening? Does that seem like it would be reasonable? I don't know how long it takes.

- Response:** For all of these alternatives, 1 through 5, the number one priority is always going to be the health and safety of everybody who lives on the island, whether it is an adult or, particularly, a child. Excavation work would not be conducted unless it is in strict accordance with dust control measures, both in terms of how the work is done and, as a backup to that, dust levels will be monitored during the fieldwork to make sure it does not exceed the standards. At no time during the project would the project allow anyone living or working at or near the work site to come in contact with any amount of soil that would not be appropriate. Safety is always going to be the project's number one consideration. This consideration is why the green fences went up and why further actions were undertaken at

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

the buildings adjacent to the green fences where some elevated areas of lead and PCBs were identified. In 2001, further actions were undertaken in these backyards, and either paving stones were put down or the sod was replaced. About 12 of those backyards are now in the Bayside and Northpoint Drive area. The DoN's contractor, Shaw Environmental & Infrastructure, Inc., has continued to maintain the paving stones and grass. If necessary, and this has occurred a few times, they have had to replace stones and grass to make sure there is a solid cover between the surface and what is beneath the surface.

If the removal action will affect both the front and the back of a residence, such as at buildings 1211 and 1213, the tenants will need to be temporarily displaced. If only one side of a residence (front or back) is affected the resident can remain during the removal action.

The decision to lay down paving stones or sod was a result of sampling throughout the housing area. All of the front yards, including the entire common area and backyards in areas close to where debris disposal had been identified, were sampled. Where samples were identified with elevated concentrations of lead, PCBs [polychlorinated biphenyls], PAHs [polycyclic aromatic hydrocarbons], or dioxins, a decision was made on whether or not to take some type of interim remedial action. Actions such as not leasing the property or placing green fences around the suspected areas were implemented. In the case of some buildings that had a couple of apartments that had already been leased out, the decision was made to either install paving stones or sod in those backyards based on the sampling results for the housing area. Many other backyards in that area were sampled, and sampling results indicated there was no need to put down sod or paving stones. So, all of those decisions were a result of actual sample data collected from those specific backyards; if there was a need to put down paving stones or sod, we did. If the test results came back indicating that no action needed to be undertaken, then no action was initiated.

Responses to Comments from Paoli Lacy

- Comment:** It's about her situation, but it applies to all of us. I mean, it sounds like the Department of Public Health came up with different results than the Navy in the sampling, because if the Navy had come up with the same results --

Response: Comment noted. The DoN has not seen nor consequently had an opportunity to review the Department of Public Health sample data. The DoN applied screening criteria that was developed by the BRAC Cleanup

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Team that included the regulatory agencies. The DoN would review any new data that becomes available.

Responses to Comments from Claudia Franson

1. **Comment:** It would depend on what is a hazardous level. They found lead. I don't know that it met their requirements.

Response: Comment noted. The DoN applied screening criteria developed by the BRAC Cleanup Team to determine when interim measures of paving stones or sod were needed.

Responses to Comments from Paoli Lacy

1. **Comment:** I guess that's a question. What are the levels that are considered hazardous? And, also, apparently there was this business of -- when the housing was built, that soil was moved in order to level it for the building of housing. Would that not spread contaminants at various levels beneath the ground?

Response: Soil Action Levels were developed in the EE/CA to be protective for current and future residents and utility workers. These levels are: 400 mg/kg for Lead; 0.62 mg/kg for PAHs; 1.0 mg/kg for PCBs; 12 ng/kg for Dioxins; and 5% by volume in air for Methane.

The actual areas where material may have been disposed of is probably smaller than the extent of the green areas (SWDAs) identified for remediation in the revised EE/CA. However, as part of the construction of the housing, when the site was being prepared that material was likely spread around. That is why the green areas now are larger than what might have been the area where debris was originally deposited. However, the revised EE/CA does not rely on the plans developed for the construction of the housing. The boundaries of all the SWDAs have been specifically defined based on actual chemical sampling data. Based on discussions with the regulatory agencies and the city, the SWDAs were sampled and all of the data collected from the sampling were used to define the SWDAs. So, outside of these green areas (SWDAs) the amount and concentrations of chemicals identified in soil is much different than what is inside the green areas. The SWDAs defined in the revised EE/CA are a product of the various sampling events conducted in the green areas, and the SWDA boundaries were adjusted several times to fully encapsulate the extent of the debris disposal and spread area.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Responses to Comments from Michelle Martinez

1. **Comment:** I live on Bayside Drive, too. I have two quick questions.
- One is, all of the green areas on the map, will the work all start at the same time or will it go in phases, like, on one street first and another street?**
 - The second question is, approximately -- maybe someone else in the room knows the answer. Approximately how much notice will we be given if we need to be displaced from our home? I live across the street from the green areas, and I imagine, if you're digging everything up, I may not be able to put my car in. Do you know about how much notice we'll be given and when the decision around that time will be made as to who is going to be displaced?**

Response: All of the work will start simultaneously. The reason for this approach is to minimize the length of the project as a whole, because there will be trucks going on and off the island for the duration of the project. If the project was done sequentially, the total period of time the trucks were driving on and off the base would be extended.

Co-ordination of the notices will be managed through your housing manager. In the letter you received, it indicated that sometime after tonight's meeting the housing management office would be making contact with residents. Thirty-two households are affected by whatever alternative is chosen. Those people will be getting a separate letter from the housing manager with the area map, so they can see where their unit is in relationship to the removal action. Then the housing manager will meet with them individually to talk about the timing, the duration, and the options (such as to stay in place or move elsewhere on a temporary basis). Each household is affected differently, depending upon the removal action in and around their particular building.

Responses to Comments from Cy Olson

1. **Comment:** My question is about the testing. Do you know how fine of a grid you tested on? You say once per backyard or twice per backyard. Then, in the common grassy areas, did you do it on a 10-foot grid or did you do two tests? How did you do that?

Did you find any hot spots concentrated in the fenced-off areas?

So, you're making a distinction between needing to clean up areas and areas that need to have -- like, peoples' backyards, that you tell them to grow grass there? Those aren't represented on the map. But

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

you're making a distinction between not saying if you need to grow grass and, it's not safe, so you need to clean up?

Response: It widely varied, depending on the general areas sampled and areas where historical information indicated disposal efforts took place. The sampling was much closer in areas where there was historical information. In areas where no data existed indicating issues might exist, the areas were sampled on an approximately 60-foot grid; which, for environmental investigation purposes, is a fairly close spacing. So, the actual quantity of data that is available for the site is more than would be expected on a typical investigation site. Figures B-1 through B-6 in Appendix B clearly illustrate where samples were collected across the site.

All of the areas where sampling results dictated that cleanup action was needed are represented by the green areas. A few areas outside of the SWDAs had more sporadic detects, and an RI is currently being undertaken to evaluate those areas. A Draft RI Report that discusses these areas is planned to be released within the next 12 months. Based on the RI results, a future determination of what cleanup, if any, might be required in those areas will be undertaken.

The revised EE/CA makes a distinction between areas identified as having a significant concentration of debris and debris-related chemicals and the rest of the site where samples taken do not demonstrate that. When the RI is complete, a determination as to whether restrictions still need to be in place or not will be undertaken. Following the guidance laid out by the regulatory agencies, it is anticipated that most of these areas of concern are within the green-shaded areas. This assumption will be confirmed through the investigation of the rest of the site.

Responses to Comments from Coliba Lowberg

1. **Comment:** **Ultimately, who has the decision making as to what alternative is going to be used?**

So, then, the comments that we basically give have no relevance to the decision that's made?

Response: The DoN, as the lead government agency, is the ultimate decision-maker. The decision-making authority is similar to the decision-making authority the EPA has that was delegated by the President to the Department of Defense or Department of Defense facilities. The DoN works in concert with the state regulatory agencies and, also, with the EPA. It is a partnership with the state and federal regulatory agencies and the city. All

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

of the information that is generated during meetings that are held at least once a month with the Cal/EPA, EPA, DTSC, and other interested state agencies, as well as the city, is provided to all of those other parties. This information is also provided in the DoN information repositories to the general public. Therefore the DoN works collaboratively with the regulatory agencies, but ultimately the DoN makes the final decision.

Questions from the public have very important relevance. The DoN needs to and is required to take your comments into consideration. The DoN will provide a response to all of the comments received. A written response to the comments received both during the public meeting on Tuesday, October 24, 2006, as well as any e-mails or written correspondence that anyone may provide up until November 11, 2006, will be addressed and will become part of the public record. All comments will be taken into account when the DoN makes the decision on which one of the five alternatives to select. The regulatory agencies and the city, with which the DoN works collaboratively, also want to make sure that public comments are included in the decision-making process.

Responses to Comments from Sparky Smith

1. **Comment:** I know that you said the Department of the Navy had minimal concerns about utility interruptions. Do you have plans in place, especially in the instance of a rupture of a water main or something like that, to handle that for people living here, dealing with that situation?

Response: The DoN has the utmost concern for utility interruptions, and works hand in hand with the city's Public Utilities Commission. For all of the work that the DoN does at the site, the DoN obtains what is called a "Dig Permit" from the Public Utilities Commission. It is very similar to what is obtained off island or on private property. When a call is placed to the utility, which you are required to do on all properties, the utility sends out a utility locator to identify the utilities before any work is conducted at the site. So, first and foremost, the DoN obtains a utilities permit, or a dig permit, from the Public Utilities Commission, which is currently operating the utilities here on the island. Then, in addition to that, the DoN coordinates with them on their emergency notification process so that the DoN and the Public Utilities Commission know exactly what to do in case there is a break, how to secure it, and how to get somebody out to fix it as quickly as possible. The DoN has been doing excavation work on the island since 1999, so the DoN knows a lot about the utility systems. The DoN has been through a few utility outages and has experience in dealing with them.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Responses to Comments from Melanie Wilkinson

1. **Comment:** I'm sorry. Maybe you said this already. Where would the soil come from that you're replacing?

Is there now one location or is it kind of a collection?

Response: All of the soil we would use for what is called "backfilling" would be clean soil that would come from off island, from a commercial source. There may be more than one location or source for clean soil. There is a process for ensuring that any soil from any source that is to be used as clean soil is in fact clean before it is placed at the site.

Responses to Comments from David Acosta

1. **Comment:** Why do you have alternatives? Do different sections have different needs? If you determine you cement the whole area or you determine just a little bit -- why are there so many choices?

So, if you determine -- let's say five. All the area of green will go under five if you determine five?

Now, if you have the alternative -- let's say I'm in the green area; that I'm determined to move and then have to move for three months or six months and then move back. Is that still a viable alternative for somebody that runs into that area? Or is it sort of just one of these alternatives, we stay in our area, and then you do one of these? That letter we got said we could possibly have to move off site.

Let's say it's determined that, where I'm living, that I have to move. That means I have to move off site?

I want to make a comment. If we have to move, that's a big inconvenience. I don't know. They've done this in -- they dug our backyard and put sod over it. We had the choice.

Response: The DoN is required by regulation to look at a reasonable range of alternatives so that the public and other interested parties can respond to them. It is all public money being spent. So, some people may have concerns about whether the DoN is spending a little money or a lot of money, or whether the DoN is digging 2 feet or digging 4 feet, or whether the DoN is placing concrete or digging up soil. It is to provide a reasonable range of alternatives to give everyone an opportunity to comment on them.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Not every building will be affected the same way by the removal. The John Stewart Company has a relocation specialist who will work with each individual household to see what their needs are.

The DoN is aware that moving is a big inconvenience.

Placing the sod was only an interim measure until the DoN could come back and do complete cleanup. The actions contained in the revised EE/CA are designed to be consistent with what may be a final cleanup remedy for the SWDA areas. There are impacts with all of the alternatives. There may be a lesser impact from concreting, but the end result is the site has all concrete and no green space. There is also going to be some differences between the impacts from the 2-foot excavation and 4-foot excavations. As the construction impacts go up, the long-term benefits might also increase.

Responses to Comments from Paoli Lacy

1. **Comment:** **In the cost part, does that include the costs of maintenance and what might be the projected costs into the future if -- I mean, for instance, if it isn't excavated below hard surface? In the future, that might need to be dug in, for some reason, or it's all covered with concrete? I mean, that has to be maintained over -- That's assuming the land is used exactly the same way it's being used right now into the foreseeable future?**

Response: All of the alternatives have a cost of maintenance. Clearly, in the case of the concreting alternative, there is a certain cost of maintenance of the concrete cap into the foreseeable future. The DoN would be digging around all of the utilities. So, for normal future maintenance activities, even with the 2-foot excavation, the areas around the utilities would be clean, so there would not be any maintenance cost relative to future utilities maintenance.

All of these costs represent making the area suitable for residential use into the future. If the residential land use changes at some point in the future, then whoever comes in to redevelop the property may incur additional costs.

In terms of its future use as a housing area under the current configuration, the DoN has accounted for that situation. If the housing area is demolished or some new structures are built in the area, then that is something that would have to be taken into account separately.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Responses to Comments from John Bruhl

1. **Comment:** A quick question. What's the average penetration of contaminants? Is it six inches or one foot? I'm wondering between the two alternatives.

Response: The maximum depth of penetration is deeper than 4 feet. At 4 feet, the DoN encountered groundwater. The general level of groundwater is about 4 feet. Once groundwater is encountered, the ability to excavate below that becomes less practical. Four feet is considered to be a reasonable depth to be protective of future use.

Responses to Comments from Eugene MacDonald

1. **Comment:** On the removal of soil. If they do that, will it be done by truck or barge?

Would the trucks be covered?

Response: It will all be done by truck. The DoN has looked at barge transportation in the past. It is not really practical to transfer material from truck to barge. There is no place at the housing area to directly load onto a barge. So, based on the DoN's previous experience at the naval station, it is planned to conduct all removal activities by truck.

The trucks will be covered. There are standards for how soil is transported.

Responses to Comments from Bodhi Mark

1. **Comment:** I'm curious if there's any plans for trees or, like, what the landscaping design is after, say, 1 through 4 and you replace the soil. Is there going to be any input on landscape design from everyone in the process?

Response: The DoN has not evaluated the removal action to that level of detail. In general, if the DoN removes landscape, the DoN will put back something similar. The DoN will work closely with TIDA and the housing management company to accomplish this.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Responses to Comments from Sparky Smith

1. **Comment:** I'm curious to know if, after the remediation process, there are any plans to open up housing for rental or if that's going to be kept vacant.

Response: That would be up to TIDA. The objective of the DoN's cleanup is to make the area suitable for residential use. So, if there is a request to lease currently vacant housing, the DoN would work with TIDA.

Responses to Comments from Eugene MacDonald

1. **Comment:** When would the actual action begin?

Response: The DoN would expect to start work at the end of January or the beginning of February 2007. But all of that is based on the sequence of events, starting with the public meeting on October 24, 2006, and getting all of the documents reviewed and ready. Based on that timeline, the work would probably start at the end of January 2007.

Responses to Comments from Paoli Lacy

1. **Comment:** I don't know if it's, like, vote or whatever, but I would like to say that I am strongly in favor of the four-foot excavation, actually, under both the hardtop and the not.

Response: Comment noted.

Responses to Comments from Sparky Smith

1. **Comment:** I would like it to be on the record that we are both extremely supportive of trees.

Response: Comment noted.

Responses to Comments from Bodhi Mark

1. **Comment:** As a visually beneficial and as a way to cut down on wind and improve – the wind conditions.

Response: Comment noted.

RESPONSES TO PUBLIC COMMENTS FROM THE OCTOBER 24 PUBLIC MEETING (CONTINUED)

Responses to Comments from Sparky Smith

- Comment:** And he wanted me to direct this question to you, so it would be on the record about the removal action levels. I noticed that, for the lead removal action level, it was based on the EPA Region IX residential risk-based PRG in soil and, for these other ones, like the PCBs, PAHs and dioxin, it's based on different criterion for each one. And PCBs is site specific, and PAHs, the equivalent concentration in soil – I don't know what that means. They're based on different guidelines. I'm just wondering how that was decided and how that relates to the most stringent environmental guidelines, you know, that are here in the state, as far as the health code goes.

Response: Cleanup levels were developed jointly between the DoN, DTSC, and EPA for this project. The cleanup levels are considered to be protective by these regulatory agencies for residential land use.

**RESPONSES TO PUBLIC COMMENTS, RECEIVED ON NOVEMBER 9, 2006 VIA E-MAIL,
TERRY BAUM**

- 1. Comment: It only makes sense to take the long-range view on this and do the job properly the first time, even though it will take longer and cause more disruption to the residents. Please do the toxic clean-up of Treasure Island to the standard of Level 4. You will be doing current and future residents of Treasure Island a great favor.**

Response: Comment noted.

REFERENCES

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- Office of Environmental Health Hazard Assessment (OEHHA). 2006. Toxicological Database. Available Online at: <http://www.oehha.ca.gov/risk/ChemicalDB>
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- EPA. 2006. Integrated Risk Information System (IRIS) Database. Available Online at: <http://www.epa.gov/iris/>

**ATTACHMENT 3:
PUBLIC INVOLVEMENT:
FACT SHEET, SEPTEMBER 2006;
FACT SHEET, OCTOBER 2006;
EE/CA PUBLIC NOTICE TEXT;
EE/CA PUBLIC MEETING REMINDER POSTCARD;
PUBLIC MEETING PRESENTATION, TRANSCRIPT, AND SIGN-IN SHEET;
FACT SHEET, NOVEMBER 2006; AND
DRAFT AM/IRAP PUBLIC NOTICE TEXT**

Fact Sheet, September 2006



A Brief Overview of the Navy's Environmental Cleanup Activities In The Treasure Island Housing Area

September 2006

www.bracpmo.navy.mil/bracbases/california/treasure_island

KEEPING YOU UPDATED

This update provides information about the Navy's ongoing and planned environmental activities in the Treasure Island (TI) Housing Area and opportunities for community involvement. On the back page you will find a contact list and resources for more information.

THE NAVY'S ENVIRONMENTAL CLEANUP PROGRAM

The primary goal of the Navy's Environmental Cleanup Program at former Naval Station Treasure Island (NAVSTA TI) is the protection of human health and the environment for all those who live, work, and visit NAVSTA TI, which includes both TI and Yerba Buena Island (YBI). The Navy's environmental investigation and cleanup activities are part of a complete program with coordination and oversight from the Department of Toxic Substances Control (DTSC), the U.S. Environmental Protection Agency (U.S. EPA), and the San Francisco Bay Regional Water Quality Control Board (Water Board). The TI Housing Area, consisting of 90 acres at the north end of TI, is included in this program and is shown on the map to the right. This area is identified in Navy environmental documents as Installation Restoration Site 12, Old Bunker Area, or "Site 12."

LOCATION OF TI HOUSING AREA



Aerial photograph taken and georeferenced by HJW Geospatial Inc. on May 25, 2006

WHAT IS THE HISTORY OF THE TREASURE ISLAND HOUSING AREA?

TIMELINE OF THE TI HOUSING AREA

- 1939** - Golden Gate International Exposition
TI Housing Area used as a parking lot for that event
- 1940** - Navy took over TI, became NAVSTA TI
- 1940-1960s** - Area used for:
 - Open space and recreational fields
 - Munitions bunkers
 - Vehicle and equipment storage
 - Burning and disposal of debris (wood, glass, metal) and petroleum products in distinct areas
- 1960s-1980s** - Navy built 904 residential units
- 1997** - NAVSTA TI closed
- 1999** - Non-military residents began leasing TI Housing Area units

Before the TI Housing Area residential units were built, and before many of today's environmental laws governing the handling of waste materials (trash) and construction debris, the Navy used portions of the TI Housing Area for solid waste disposal. Disposed items included a variety of waste materials and debris created from base operations on NAVSTA TI. Base operations included training, demolition and construction of facilities, maintenance, transportation, and ship repair and refurbishing. As was common practice, some of the waste material and debris were burned, creating ash material.

Through numerous investigations, the Navy has characterized the general type and amount of contamination and is in the process of developing work plans to address the areas that are most affected. The Navy has put up fences or placed sod or concrete over soil in some areas to minimize exposure and ensure safety while cleanup plans are completed. **While there is some contamination currently remaining in the TI Housing Area, it does not pose an immediate threat to human health given the precautions that have been taken.** Read on for descriptions of the investigations and the results.

WHAT HAS THE NAVY DONE TO INVESTIGATE THE TREASURE ISLAND HOUSING AREA?

Since the early 1990s, the Navy has conducted a series of soil and groundwater investigations in the TI Housing Area. Some of you may have seen or received notices about Navy contractors drilling or excavating trenches. Over 4,900 individual soil samples and 600 groundwater samples have been collected at locations in the TI Housing Area. The Navy, working as a team with DTSC, U.S. EPA, and the Water Board, and with input from the City and County of San Francisco, has evaluated the sampling data, studied aerial photographs from the 1940s and later, and reviewed historical Navy records and reports. Each phase of the investigations has been carefully planned based on environmental regulations and guidance and information gathered in earlier investigation phases in a step-by-step process.

WHAT ARE THE RESULTS OF THE NAVY INVESTIGATIONS AND ACTIVITIES TO DATE?

The results of investigations identified four distinct areas where waste material and burned debris disposal routinely occurred before the housing units were built. These areas are identified by the Navy as the Solid Waste Disposal Areas. Some of the disposed material buried in the soil in these areas contains petroleum and hazardous substances such as: lead from lead-based paints commonly used during that time, polychlorinated biphenyls (PCBs) from electrical and hydraulic equipment, dioxins from burned material, and polycyclic aromatic hydrocarbons (PAHs), which are often associated with petroleum products and burned material.

Investigation results have also shown that waste material was scattered in small locations outside the four Solid Waste Disposal Areas during grading of the soil for construction of the housing. The Navy is addressing this contamination with the regulatory agencies. As a precaution, there are rules in place to ensure the safety of residents, including no gardening, digging, or disturbing soil. The Navy has installed fences around the Solid Waste Disposal Areas to restrict access. In addition, in a few backyards near the fenced areas, the Navy has taken temporary measures to prevent contact with the underlying soil by placing sod or concrete tiles in those backyards.

Remember the signs you see posted and the NAVSTA TI rules are in place for your safety. The Navy appreciates the cooperation of tenants and visitors in observing posted signs identifying areas where entry is prohibited. Please refer to the rules provided by your housing management company for do's and don'ts in backyards and common areas, including not digging or otherwise disturbing soil.

The groundwater at TI has also been investigated to determine potential impacts to the Bay; however, it is not an issue with regards to human health since groundwater from TI is not used for drinking water, or for any other purpose. Drinking water is piped in from the City of San Francisco.

WHAT ARE THE PLANNED CLEANUP ACTIVITIES FOR THE TI HOUSING AREA?

Presently, the Navy is preparing a planning document for the cleanup of the four Solid Waste Disposal Areas. That planning document is called an Engineering Evaluation/Cost Analysis, or EE/CA, and will be issued in October 2006. The Navy will hold a public meeting to discuss plans for work to be done in the Solid Waste Disposal Areas, and how that work may affect you.

In addition, the Navy is preparing a report to address the entire TI Housing Area. This is called a Remedial Investigation Report, and it will be issued sometime in mid 2007.

To keep the community informed about the ongoing and planned environmental investigations and cleanup activities for the TI Housing Area, the Navy will:

- Mail fact sheets with specific information about planned activities and announce public comment periods
- Hold a public meeting during the EE/CA cleanup planning document public comment period this October
- Mail work notices to announce field work and road closures
- Provide contact information so the community may ask questions, access environmental documents, and be added to the mailing list

Look for an upcoming fact sheet about the EE/CA cleanup planning document and an announcement for the public meeting.

HOW CAN I GET MORE INFORMATION NOW?

There are several ways to get more information. You may contact any of the people on this contact list:

| Name/Title | Organization | Phone/Fax | Address | E-mail |
|--|--|---|--|----------------------------|
| James Sullivan BRAC* Environmental Coordinator | Navy BRAC Program Management Office West | (619) 532-0966 (415) 743-4704 Fax: (619) 532-0983 | 1455 Frazee Road Suite 900 San Diego, CA 92108-4310 | james.b.sullivan2@navy.mil |
| La Rae Landers Lead Remedial Project Manager | Navy BRAC Program Management Office West | (619) 532-0970 Fax: (619) 532-0983 | 1455 Frazee Road Suite 900 San Diego, CA 92108-4310 | larae.landern@navy.mil |
| Jill Votaw Public Affairs Officer | Navy BRAC Program Management Office West | (619) 532-0941 Fax: (619) 532-0983 | 1455 Frazee Road Suite 900 San Diego, CA 92108-4310 | jill.votaw@navy.mil |
| David Rist Remedial Project Manager | Department of Toxic Substances Control | (510) 540-3763 Fax: (510) 849-5285 | 700 Heinz Ave. Berkeley, CA 94710 | drist@dtsc.ca.gov |
| Richard Perry Public Participation Specialist | Department of Toxic Substances Control | (510) 540-3910 Fax: (510) 540-3927 | 700 Heinz Ave. Berkeley, CA 94710 | rperry@dtsc.ca.gov |
| Agnes Farres Remedial Project Manager | Regional Water Quality Board Control | (510) 662-2401 | 1515 Clay Street Suite 1400 Oakland, CA 94612 | afarres@waterboards.ca.gov |
| James Ricks Remedial Project Manager | U.S. Environmental Protection Agency | (510) 972-3156 Fax: (415) 947-3520 | 75 Hawthorne Street 8th Floor San Francisco, CA 94105 | ricks.james@epa.gov |

*BRAC is also known as Base Realignment and Closure.

Attend the Navy's Restoration Advisory Board (RAB) Meetings, held the third Tuesday of every other month at the Casa de la Vista on TI. Updates on basewide environmental investigations and activities are presented at the meetings. RAB meetings are currently scheduled for October 17, 2006 and December 20, 2006.

Visit the Navy's website, which contains historic and current information including information on becoming a RAB member. It can be viewed at: www.bracpmo.navy.mil/bracbases/california/treasure_island

In addition, the following two local information repositories have been established for community access to NAVSTA TI Environmental Cleanup Program documents:

Navy BRAC Caretaker Support Office
410 Palm Avenue, Building 1, Room 161
Treasure Island, San Francisco, CA 94130
(415) 743-4704

AND

San Francisco Public Library
Government Publications Section
100 Larkin Street, San Francisco, CA 94102
(415) 557-4400

NAVSTA TI MAILING COUPON

If you would like to be added to the TI/YBI mailing list and receive copies of future newsletters and fact sheets, please fill out the coupon below and mail it to:

James Sullivan
Navy BRAC Program Management Office West
410 Palm Avenue
Building 1, Room 161
Treasure Island, San Francisco, CA 94130-1806

Name _____

Address _____

City _____ State _____ Zip _____

E-mail Address _____

ADD MY NAME TO THE MAILING LIST **DELETE MY NAME FROM THE MAILING LIST**



James Sullivan
Navy BRAC Program Management Office West
410 Palm Avenue
Building 1, Room 161
Treasure Island
San Francisco, CA 94130-1806

Fact Sheet, October 2006



The Navy Wants Your Input on Cleanup Decisions for Portions of the Treasure Island Housing Area

October 2006

www.bracpmo.navy.mil/bracbases/california/treasure_island

The Navy is requesting your input on planned Environmental Cleanup Program activities for the green fenced locations and adjacent areas in the Treasure Island (TI) Housing Area at former Naval Station Treasure Island (NAVSTA TI).

This fact sheet:

- Announces the availability of an environmental document for public review and comment, the Engineering Evaluation/ Cost Analysis, or EE/CA
- Invites you to a public meeting to give your input on the EE/CA cleanup alternatives



REQUESTING YOUR INPUT ON CLEANUP ALTERNATIVES

The Navy is making a decision about environmental cleanup adjacent to and within the green fenced locations in the TI Housing Area. **The Navy wants your input on the cleanup alternatives.** See the map on page 2 for the locations in the TI Housing Area where the Navy plans to conduct cleanup activities.

The Navy is holding a public meeting to present cleanup alternatives to you and gather your input. The EE/CA, which describes 5 possible cleanup alternatives for the green fenced locations and some adjacent areas, is **available for public comment for 30 days from October 12, 2006 through November 11, 2006.**

The EE/CA document can be found at two NAVSTA TI Information Repositories:

Navy Caretaker Support Office
410 Palm Avenue,
Building 1, Room 161
Treasure Island (415) 743-4704

San Francisco Public Library
100 Larkin Street, 5th Floor
Government Publications Section
San Francisco (415) 557-4400

If you need assistance finding the document or have questions, contact James Sullivan at james.b.sullivan2@navy.mil; (619) 532-0966.

PROVIDE YOUR COMMENTS

If you would like to provide your comments on the EE/CA and cannot attend the public meeting, you may send your comments **no later than November 11, 2006** to the Navy at:

Mr. James B. Sullivan
Navy BRAC PMO West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
Fax: (619) 532-0983
Email: james.b.sullivan2@navy.mil

Additional information is provided on the attached pages.

PUBLIC MEETING TO PROVIDE YOUR INPUT

Date:

Tuesday, October 24, 2006

Time:

6:00 p.m.: Informational Poster Session

7:00 p.m. – 8:30 p.m.: Presentation and
Public Comments

Place: Casa de la Vista

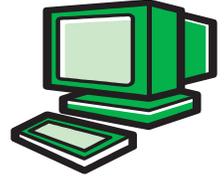
Avenue of the Palms, Treasure Island

HOW CAN I GET MORE INFORMATION?



RAB and Public Meeting Location

See the Navy's website at www.bracpmo.navy.mil/bracbases/california/treasure_island for a recent fact sheet about the history of the TI Housing Area.



Attend the Navy's Restoration Advisory Board (RAB) meetings for presentations on the TI Housing Area, as well as updates on the basewide Environmental Cleanup Program. RAB meetings are held at 7:00 p.m. on the third Tuesday of every other month at the Casa de la Vista on TI, and are currently scheduled for October 17, 2006 and December 19, 2006.



Check your mailbox for upcoming postcards, notices, fact sheets, and public meeting announcements about field work that will be conducted.

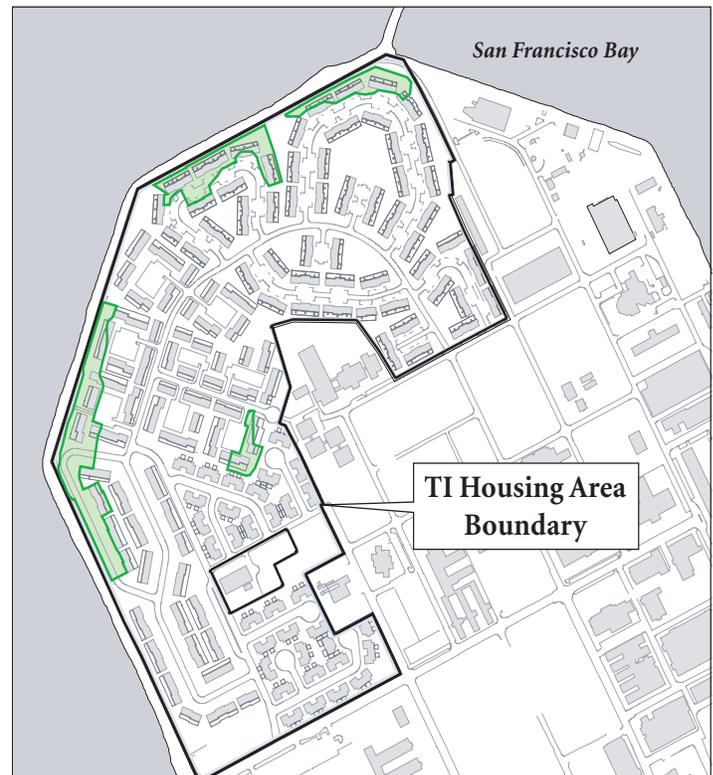
WHAT IS THE SCHEDULE?

Tuesday, October 24, 2006: Come to the public meeting to hear a presentation, ask questions, and provide verbal comments and input on the EE/CA and proposed cleanup alternatives. You may also submit written comments through **November 11, 2006**.

Early 2007: Cleanup activities will begin in and around your neighborhood. You will receive work notices about the locations, dates and times, and traffic and utility disruptions at least 2 weeks before the field work begins.

WHY IS WORK BEING PLANNED?

The areas being addressed by the EE/CA are locations where waste material and burned debris disposal routinely occurred before the TI housing was built and prior to environmental laws governing waste disposal. These areas, which total about 5 acres, are fenced off or covered with blocks of concrete or grass in order to prevent exposure to soil while the Navy and regulatory agencies determine the best remedy. **While there is some contamination currently remaining in the TI Housing Area, it does not pose an immediate threat to human health given the precautions that have been taken.** The Navy is planning environmental cleanup field work in the areas that are adjacent to and within the green fences to provide long-term protection for future residents and utility workers.



 Areas Being Addressed in the EE/CA

THE CLEANUP ALTERNATIVES BEING CONSIDERED IN THE EE/CA

As noted on page 1, the Navy is preparing an environmental document known as an EE/CA that will describe the cleanup alternatives for the green fenced locations and certain adjacent areas in the TI Housing Area. The five cleanup alternatives are as follows:

- Alternative 1** Shallow excavation (remove soil down to 2 feet, except under driveways)
- Alternative 2** Shallow excavation (remove soil down to 2 feet, including under driveways)
- Alternative 3** Deep excavation (remove soil down to 4 feet, except under driveways)
- Alternative 4** Deep excavation (remove soil down to 4 feet, including under driveways)
- Alternative 5** Capping (cover areas with poured-in-place concrete)

An alternative has not yet been selected. The final selection will include your input, as well as input from the City and County of San Francisco, the Department of Toxic Substances Control, the U.S. Environmental Protection Agency, and the San Francisco Bay Regional Water Quality Control Board.

YOU MAY CONTACT ANYONE ON THIS LIST FOR MORE INFORMATION

| Name/Title | Organization | Phone/Fax | Address | E-mail |
|---|--|---|--|----------------------------|
| James Sullivan BRAC Environmental Coordinator | Navy BRAC Program Management Office West | (619) 532-0966 (415) 743-4704 Fax: (619) 532-0983 | 1455 Frazee Road, Suite 900 San Diego, CA 92108-4310 | james.b.sullivan2@navy.mil |
| La Rae Landers Lead Remedial Project Manager | Navy BRAC Program Management Office West | (619) 532-0970 Fax: (619) 532-0983 | 1455 Frazee Road, Suite 900 San Diego, CA 92108-4310 | larae.landernavy.mil |
| Jill Votaw Public Affairs Officer | Navy BRAC Program Management Office West | (619) 532-0941 Fax: (619) 532-0983 | 1455 Frazee Road, Suite 900 San Diego, CA 92108-4310 | jill.votaw@navy.mil |
| David Rist Project Manager | Department of Toxic Substances Control | (510) 540-3763 Fax: (510) 849-5285 | 700 Heinz Ave. Berkeley, CA 94710 | drist@dtsc.ca.gov |
| Richard Perry Public Participation Specialist | Department of Toxic Substances Control | (510) 540-3910 Fax: (510) 540-3927 | 700 Heinz Ave. Berkeley, CA 94710 | rperry@dtsc.ca.gov |
| Agnes Farres Remedial Project Manager | Regional Water Quality Board Control | (510) 622-2401 | 1515 Clay Street, Suite 1400 Oakland, CA 94612 | afarres@waterboards.ca.gov |
| James Ricks Remedial Project Manager | U.S. Environmental Protection Agency | (415) 972-3156 Fax: (415) 947-3520 | 75 Hawthorne Street 8th Floor San Francisco, CA 94105 | ricks.james@epa.gov |

NAVSTA TI MAILING COUPON

If you would like to be added to the TI/YBI mailing list and receive copies of future newsletters and fact sheets, please fill out the coupon below and mail it to:

James Sullivan
Navy BRAC Program Management Office West
410 Palm Avenue
Building 1, Room 161
Treasure Island, San Francisco, CA 94130-1806

Name _____

Address _____

City _____ State _____ Zip _____

E-mail Address _____

ADD MY NAME TO THE MAILING LIST

DELETE MY NAME FROM THE MAILING LIST



James Sullivan
Navy BRAC Program Management Office West
410 Palm Avenue, Building 1, Room 161
Treasure Island
San Francisco, CA 94130-1806

**Environmental cleanup within the
Treasure Island Housing Area is being planned.
You are invited to a
PUBLIC MEETING ON OCTOBER 24, 2006
to give your input on the 5 different cleanup
alternatives being evaluated for the project.**

EE/CA Public Notice Text

The Department of the Navy Announces a Public Meeting & 30-Day Public Comment Period On The Engineering Evaluation/Cost Analysis for Portions of the Treasure Island Housing Area Former Naval Station Treasure Island The Navy will hold a public meeting on October 24, 2006 and invites public comment on alternatives for removal of contaminated soil in portions of the housing area at Treasure Island. These five alternatives are presented in a document called the Engineering Evaluation/Cost Analysis (EE/CA) and can be found at the SF Public Library, SF, CA 94102, (415) 557-4400 AND at the Navy BRAC CSO, 410 Palm Ave, Bldg 1, Rm 161, TI, SF, CA 94130, (415) 743-4704, M - F 9:30am-3:30pm. Or, for recent fact sheets about IR Site 12, see the Navy's website at:

www.bracpmo.navy.mil/bracbases/california/treasure_island TI is located north of the SF-Oakland Bay Bridge within the City and County of San Francisco. Reuse of the former Naval Station is currently coordinated by the City of SF. Environmental data was collected to determine the extent of contamination and evaluate potential risks to human health and the environment at IR Site 12.

The Navy is evaluating five alternatives for cleanup of contaminated soil and will hold a 30-day public comment period on the EE/CA through November 11, 2006. The alternatives for cleanup in about 5 acres of the 90 acre housing area are:

Alternative 1 - Shallow excavation (remove soil down to 2 feet,

except under driveways) Alternative 2 - Shallow excavation (remove soil down to 2 feet, including under driveways)

Alternative 3 - Deep excavation (remove soil down to 4 feet, except under driveways) Alternative 4 - Deep excavation (remove soil down to 4 feet, including under driveways) Alternative 5 -

Capping (cover areas with poured-in-place concrete) 30-Day Public Comment Period The Navy will hold a 30-day public comment period through November 11, 2006. Comments may be submitted in writing or orally at the public meeting or mailed postmarked no later than November 11, 2006. For more information or to submit comments, contact: Mr. James Sullivan, BRAC PMO West, 1455 Frazee Rd, Ste 900, San Diego, CA 92108-4310, e-mail: james.b.sullivan2@navy.mil, or call (619) 532-0966. Public Meeting The Navy will present the EE/CA during a public meeting scheduled: Tuesday, October 24, 2006; Time: 6:00pm-8:30pm, at the Casa de la Vista, Bldg 271, TI The Navy will provide displays & information on the cleanup alternatives being considered for portions of IR Site 12 the TI Housing Area. You will have an opportunity to ask questions & formally comment on the Navy's EE/CA.

EE/CA Public Meeting Reminder Postcard



REMINDER

The Navy is planning environmental cleanup work in portions of the Treasure Island Housing Area. You are invited to a public meeting to give your input on the cleanup alternatives being evaluated.

BRAC
PMO WEST

PUBLIC MEETING

TUESDAY, OCTOBER 24, 2006, 6:00 p.m. - 8:30 p.m.

At the Casa de la Vista, Building 271, Avenue of the Palms, Treasure Island

6:00 p.m.

Poster stations displaying information about the planned environmental cleanup work in portions of the TI Housing Area and one-on-one discussion.

You can come anytime between 6:00 p.m. and 8:30 p.m. to give your input. You do not have to stay the entire time. Parents are invited to bring their children.

7:00 p.m.

A brief presentation about the cleanup alternatives being evaluated for portions of the TI Housing Area and public comment period.

For more information, call James Sullivan at (619) 532-0966, leave a message at (415) 743-4704, or see the Navy's website at:

www.bracpmo.navy.mil/bracbases/california/treasure_island



Mr. James B. Sullivan
Navy BRAC PMO West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Environmental cleanup within the TI Housing Area is being planned. Come to the **PUBLIC MEETING on OCTOBER 24, 2006** to give your input on the cleanup alternatives

Public Meeting Presentation, Transcript, and Sign-In Sheet



Revised Engineering Evaluation/Cost Analysis Solid Waste Disposal Areas Site 12, Old Bunker Area

October 24, 2006
NAVSTA Treasure Island
Public Meeting

Overview



1. Site History
2. Definition - Non-Time Critical Removal Action
3. Site Location and Removal Action Areas
4. Chemicals within Removal Action Areas
5. Identification of Removal Action Objectives (RAOs) and Action Levels
6. Removal Action Alternatives

Site 12 History



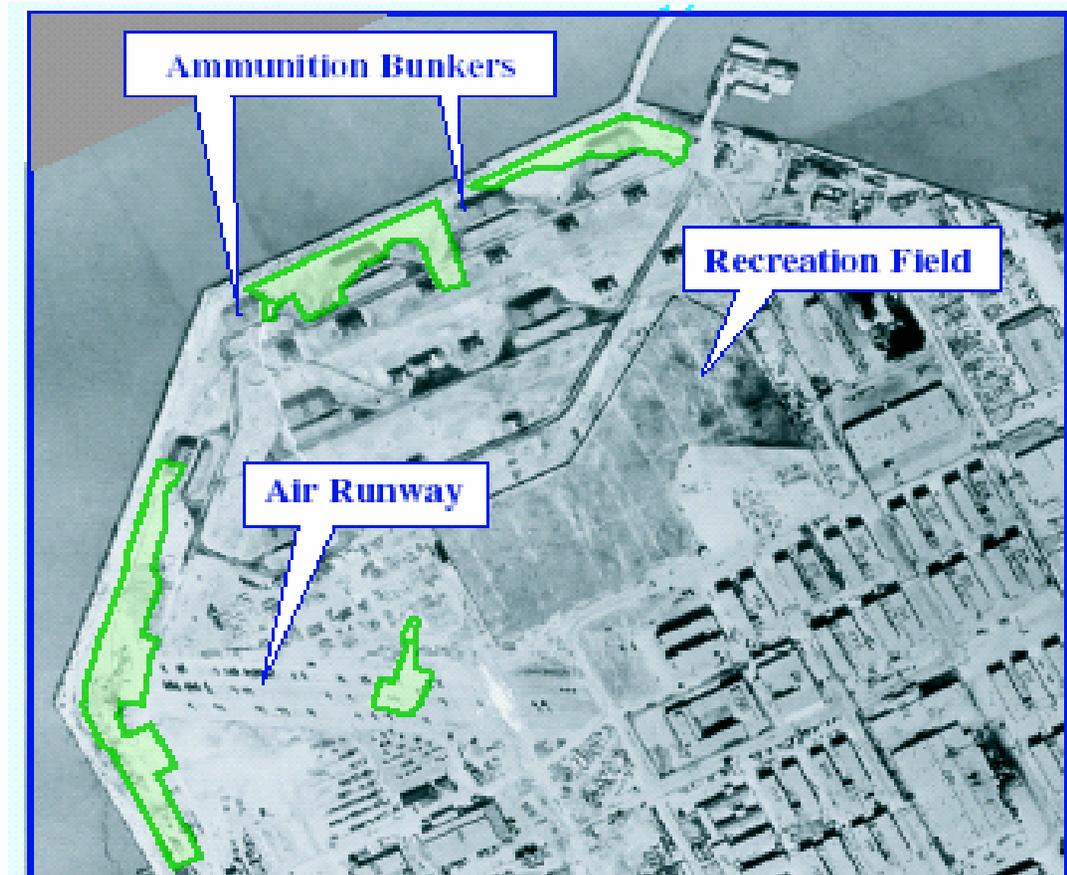
- “Old Bunker Area”
 - Ammunition bunkers and storage area
- Solid Waste Disposal Areas (SWDAs)
 - Household waste, construction debris, trash incinerator ash
- Construction of Military Housing
 - 1960s to 1980s

Site 12 History

(continued)



1945 Aerial Photograph



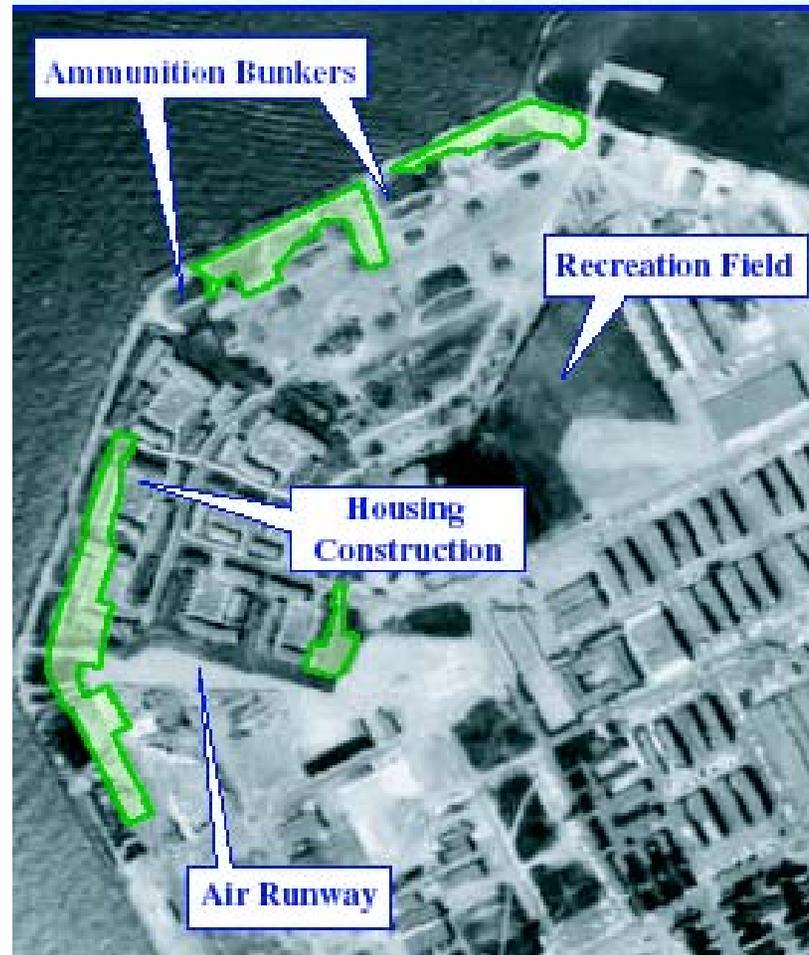
 Areas being addressed by the EE/CA

Site 12 History

(continued)



1968 Aerial Photograph



 Areas being addressed by the EE/CA

Removal Action - Definitions



CERCLA and NCP Definitions:

- Cleanup or removal of hazardous substances from the environment
- Actions to monitor the release or threat of release of hazardous substances
- Actions to mitigate or prevent damage to the public health or welfare or to the environment

Removal Action Classification



Emergency Removal Action

Initiated within hours after a release or threat of release has been verified



Time Critical Removal Action (TCRA)

A period of 6 months or less exists before on-site removal activities must be initiated



Non-Time Critical Removal Action (NTCRA)

On-site action can be taken more than 6 months after the planning period begins

Site 12 Features



Removal Action Areas

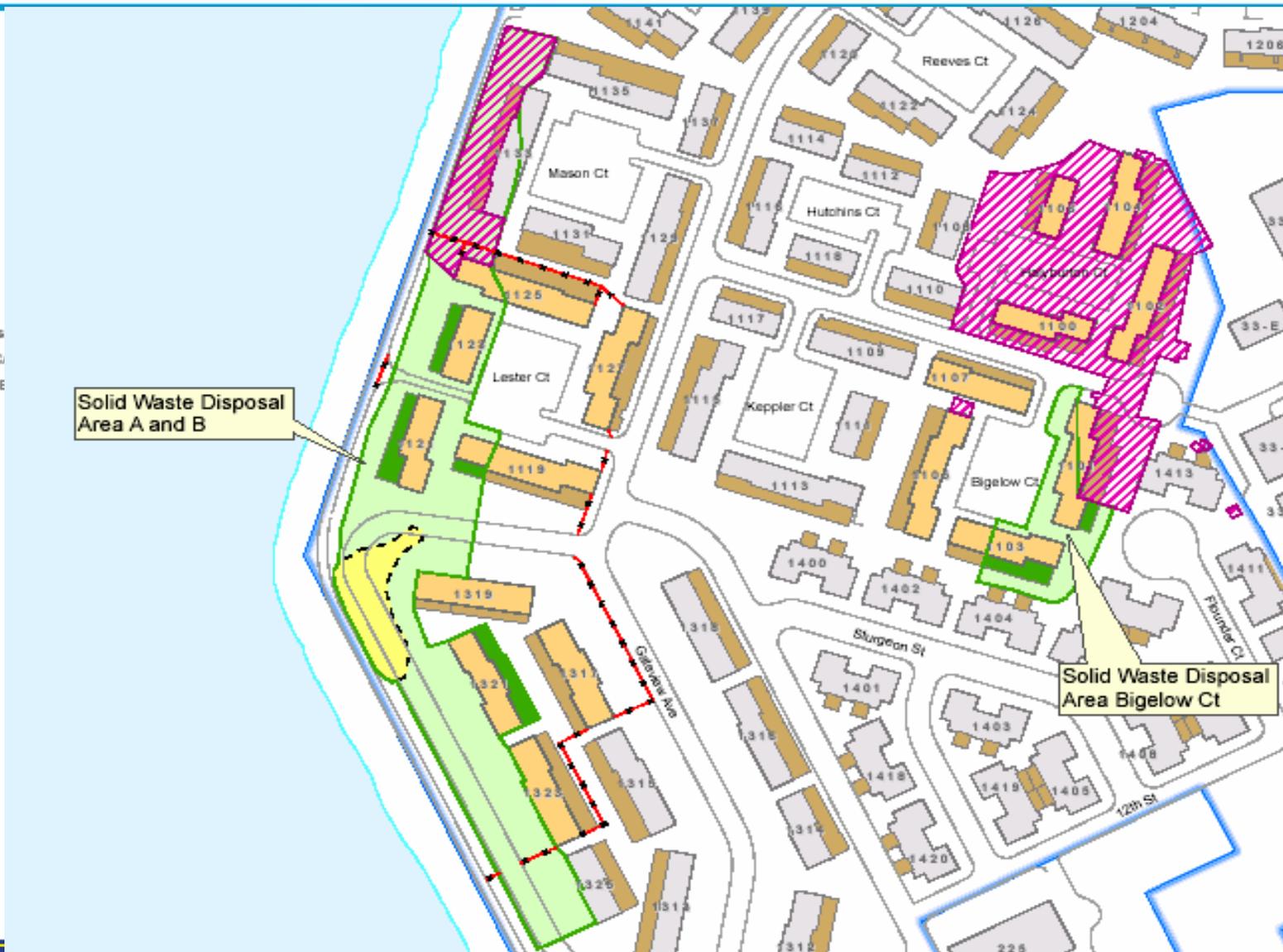
(enlarged view of Site 12 slide)



- Site 12 Boundary
- Solid Waste Disposal Areas
- Backyards Included in EEC
- Backyards Excluded From EEC
- Unoccupied Buildings
- Occupied Buildings
- PRIOR EXCAVATION AREA
- Dioxin boundary
- Methane boundary
- BWDA Fences
- Road

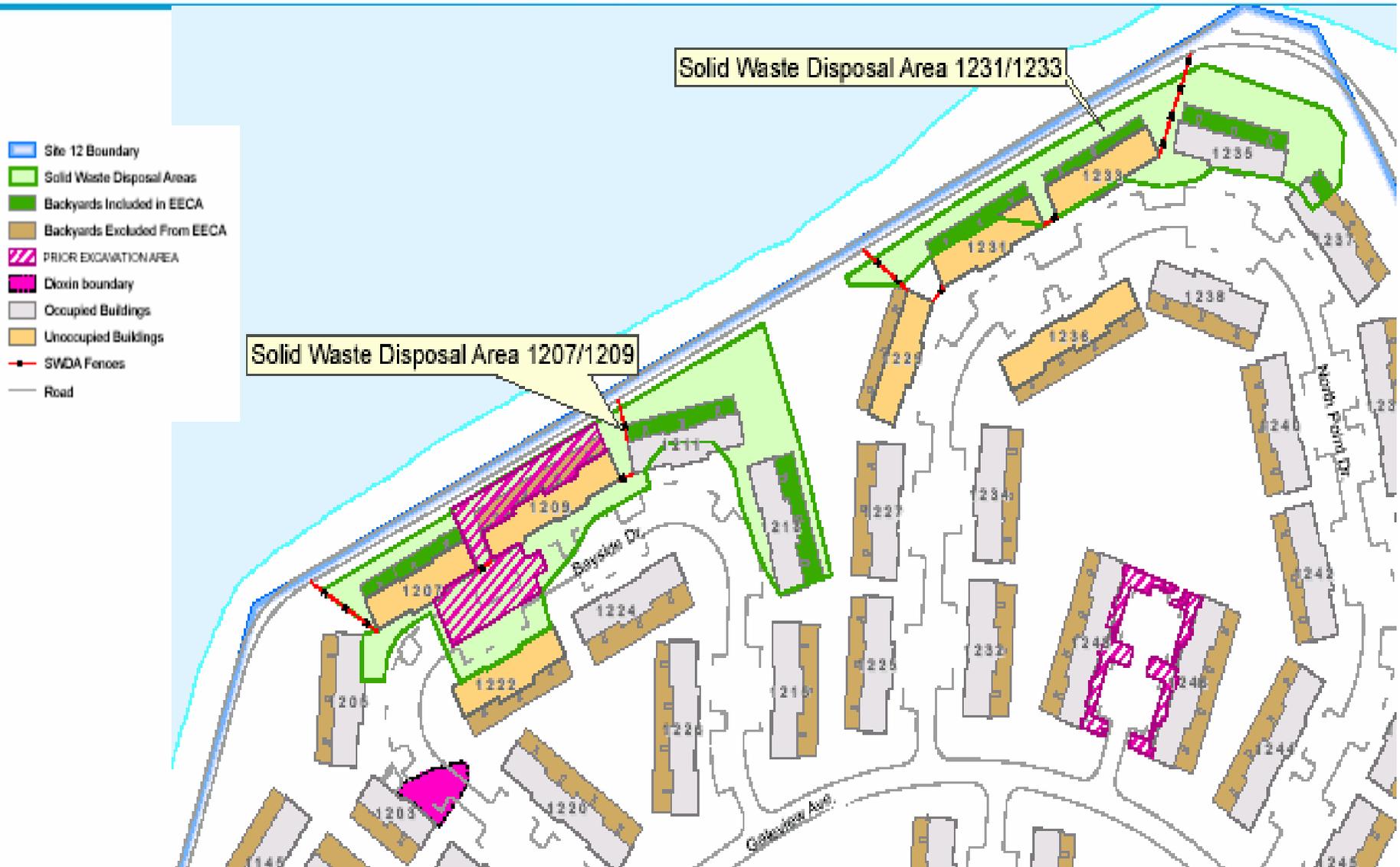
Solid Waste Disposal Area A and B

Solid Waste Disposal Area Bigelow Ct



Removal Action Areas (Cont'd)

(enlarged view of Site 12 slide)



What do the known SWDAs contain?



- Debris and waste material may be found in soil
- Primary Chemicals Of Concern
 - Lead
 - PCBs (used primarily in electrical equipment)
 - Dioxins
 - PAHs
- Methane appears to be present within an isolated area of SDWA A&B
 - Residual may be a result of decomposing material in the subsurface

Risk Evaluation



- Areas with highest concentrations of contamination have been located
 - Primarily within SWDAs
- Cleanup levels developed with input from the BCT and regulatory agencies

Removal Action Objective (RAO)



Reduce the potential for human contact with chemical-contaminated soil within the Site 12 SWDAs under the current land use and utility configurations.

Removal Action Levels

(not to exceed for any sample)



- Lead EPA Region 9 residential risk-based PRG in soil = 400 mg/kg
- PCBs Site-specific criterion in soil = 1 mg/kg
- PAHs BAP equivalent concentration in soil = 0.62 mg/kg
- Dioxin NAVSTA TI ambient dioxin TEQ concentration in soil = 12 ng/kg

Solid waste-contaminated soil - visual observations will also be used to help direct solid waste removal

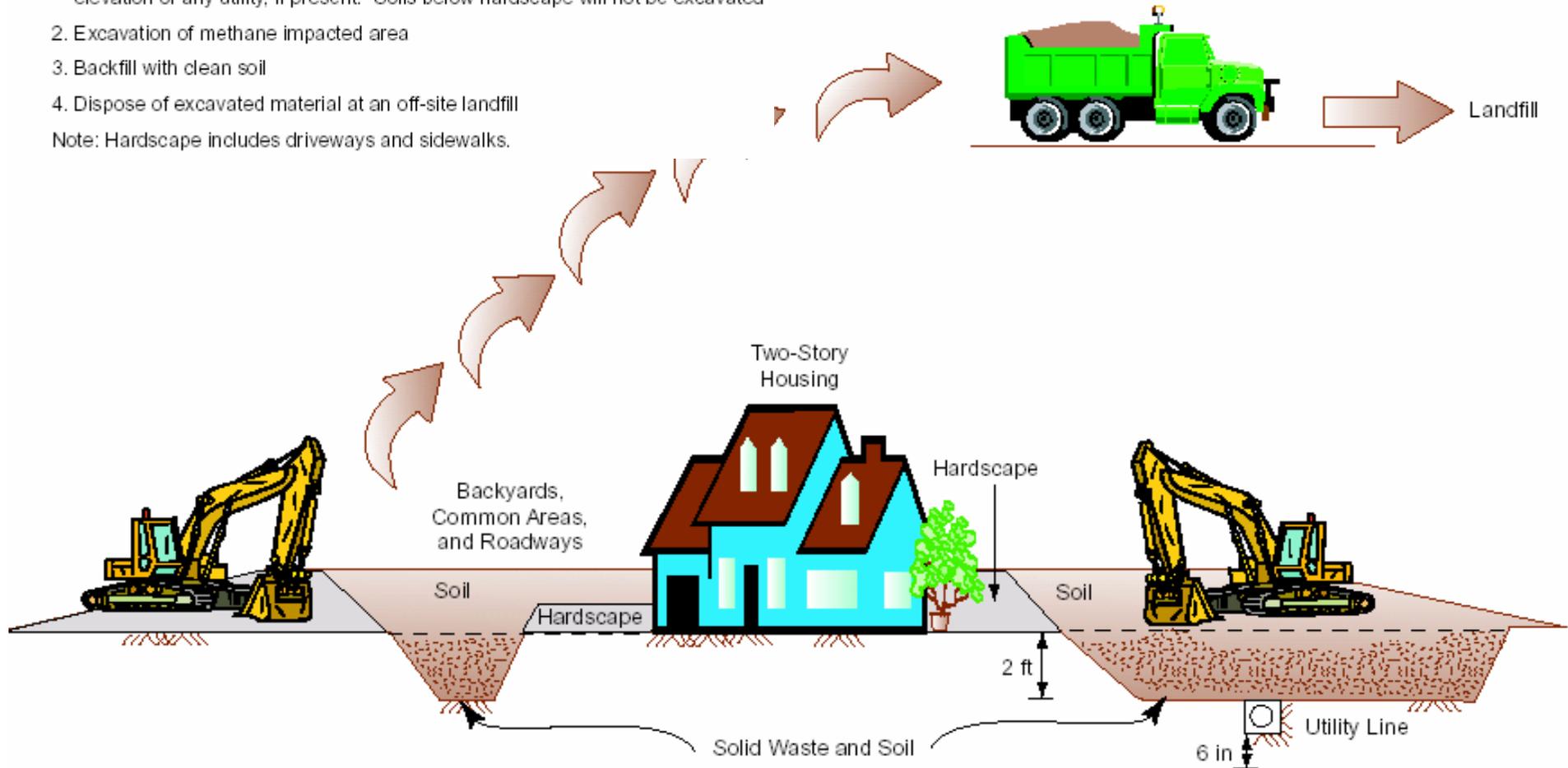
Alternative 1 (excluding hardscape)



1. Soil excavation to 2 feet. In addition, soil excavation to 6 inches below the elevation of any utility, if present. Soils below hardscape will not be excavated
2. Excavation of methane impacted area
3. Backfill with clean soil
4. Dispose of excavated material at an off-site landfill

Note: Hardscape includes driveways and sidewalks.

Excavated material disposed of at a permitted off-site landfill.



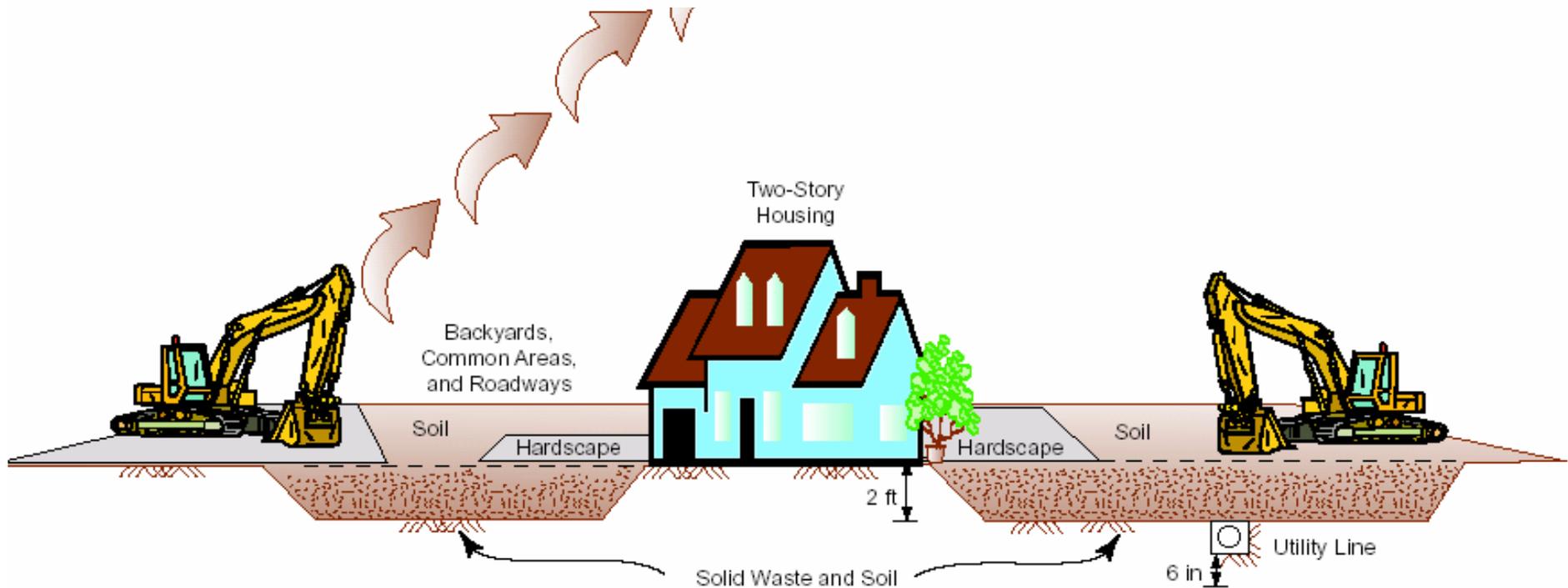
Alternative 2

(including hardscape)



1. Soil excavation to 2 feet. In addition, soil excavation to 6 inches below the elevation of any utility, if present. Soils below hardscape will also be excavated
 2. Excavation of methane impacted areas
 3. Backfill with clean soil
 4. Dispose of excavated material at off-site landfill
- Note: Hardscape includes driveways and sidewalks

Excavated material disposed of at a permitted off-site landfill.



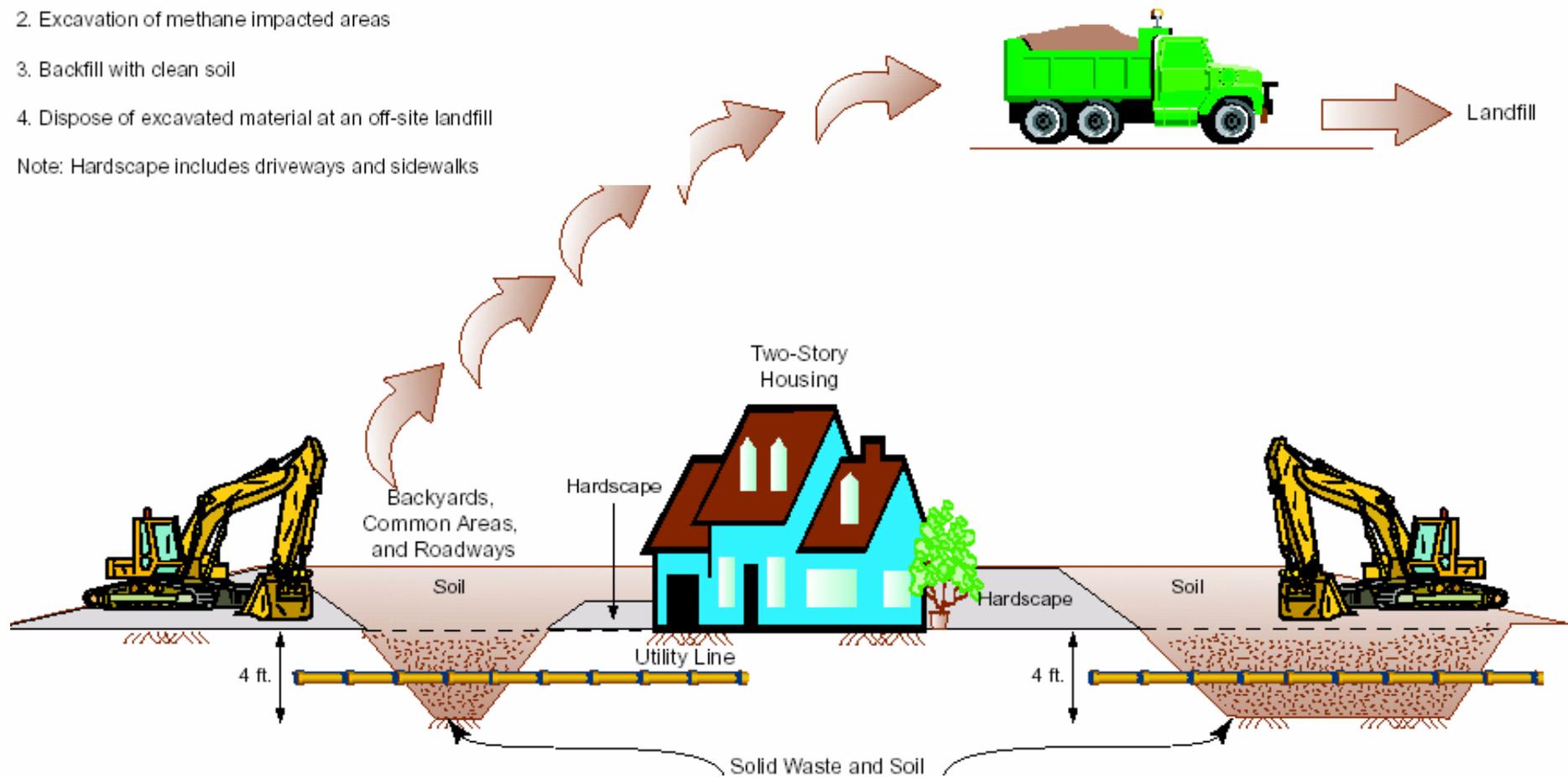
Alternative 3 (excluding hardscape)



1. Excavate backyard and common areas (excluding hardscape) to 4 feet
2. Excavation of methane impacted areas
3. Backfill with clean soil
4. Dispose of excavated material at an off-site landfill

Note: Hardscape includes driveways and sidewalks

Excavated material disposed of at a permitted off-site landfill.



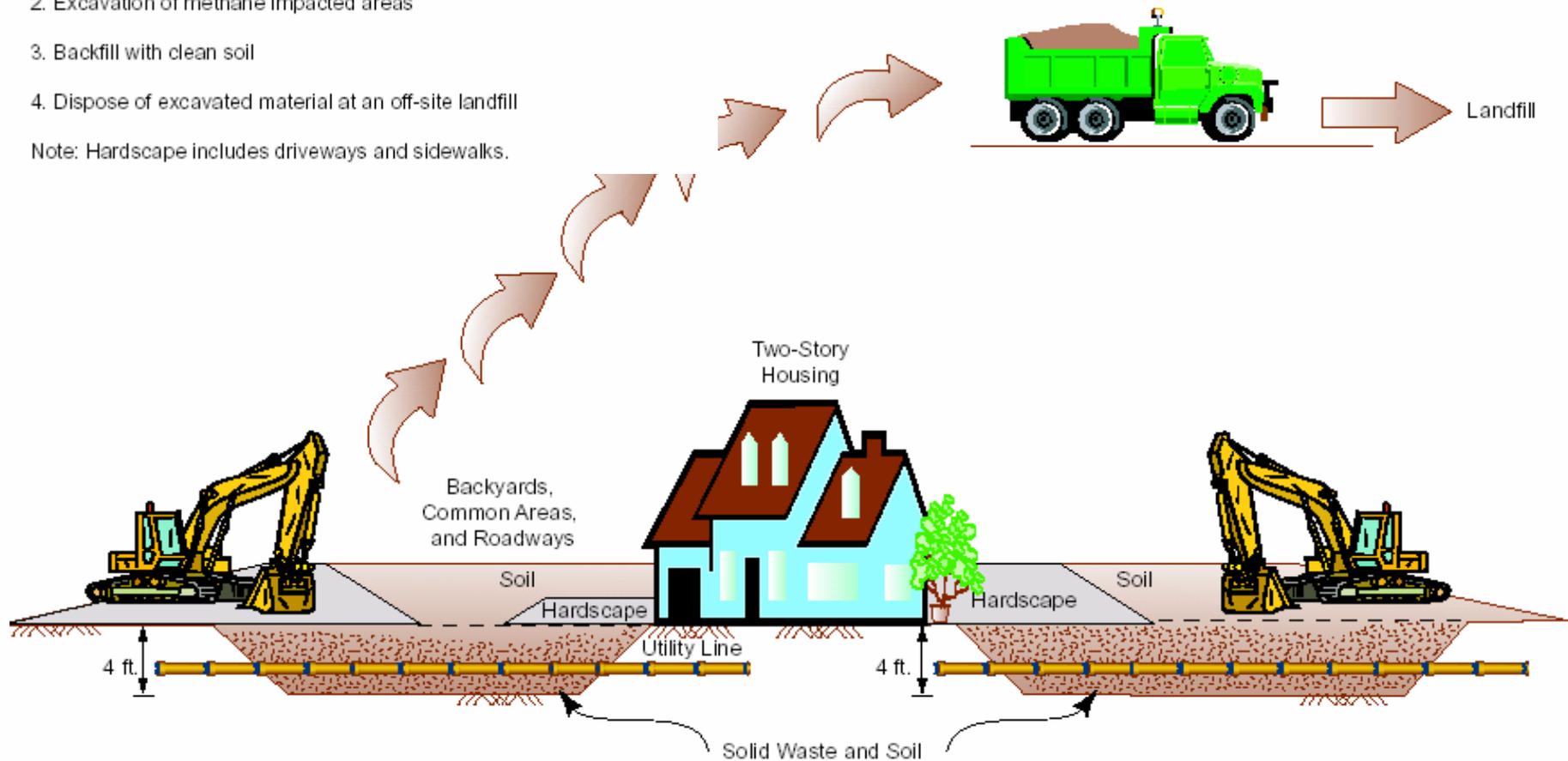
Alternative 4 (including hardscape)



1. Excavate backyard and common areas (including hardscape) to 4 feet.
2. Excavation of methane impacted areas
3. Backfill with clean soil
4. Dispose of excavated material at an off-site landfill

Note: Hardscape includes driveways and sidewalks.

Excavated material disposed of at a permitted off-site landfill.

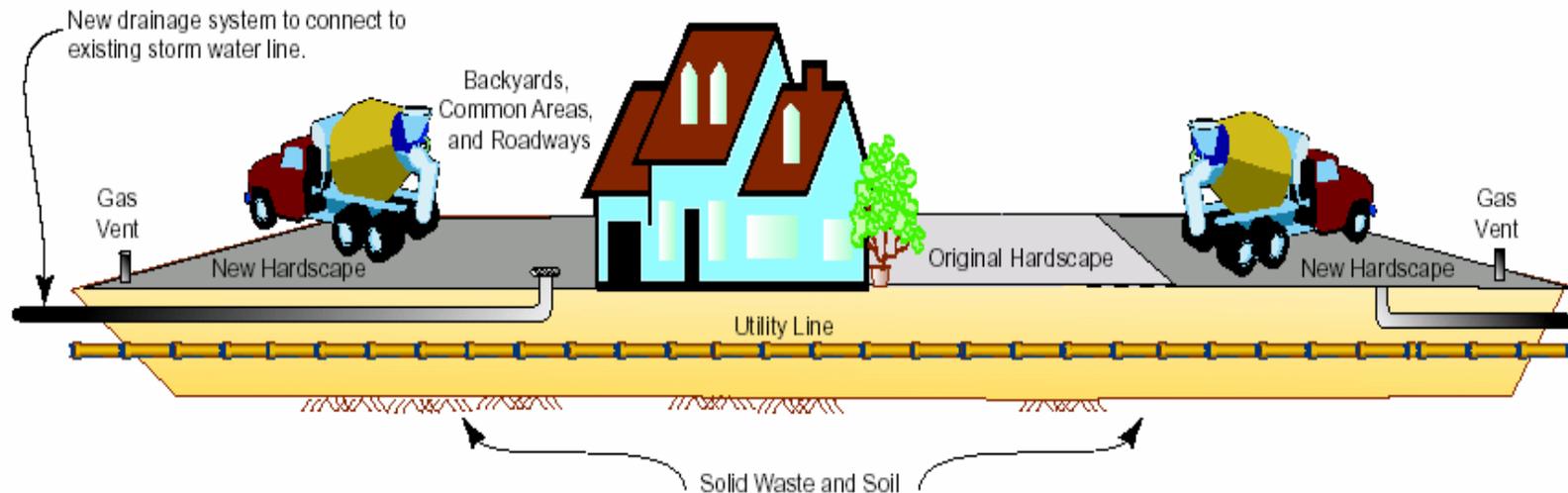


Alternative 5 (capping)



1. Clear and grade surface to fill
2. Install drainage system and gas vents
3. Pave backyards and common areas with 4-inch, mesh-reinforced concrete slab on grade

Note: Hardscape includes driveways and sidewalks.



Alternative: Comparative Analysis



| Alternative | Excavated Area (ft ²) | Estimated excavation Volume (CY) | Cost Opinion (millions)* |
|-------------|-----------------------------------|----------------------------------|--------------------------|
| 1 | 209,160 | 15,493 | \$7.3 |
| 2 | 228,126 | 16,898 | \$7.9 |
| 3 | 209,160 | 30,987 | \$11.2 |
| 4 | 228,126 | 33,796 | \$12.3 |
| 5 | 209,160 | 3,231 | \$3.6 |

* Costs were developed using means 2006 cost Indexes and vendor estimates

EE/CA and Removal Action Schedule



- 10/12/2006 - EE/CA 30 day public comment period through 11/11/2006
- 11/29/06 - Selected Cleanup Alternative Public Meeting
- 12/13/2006 - Draft Action Memo/Interim RAP 30 day public comment period through 1/12/2007
- 1/22/2007 - Final Action Memo/Interim RAP and Work Plans

Construction Health and Safety



- Dust controls and monitoring
- Traffic controls and notifications
- Utility Outage notifications and planning
- Radiological screening of excavated materials

Comments?



Comments are due by November 11, 2006

- Email to: james.b.sullivan2@navy.mil

- Mail to:

James B. Sullivan

Navy BRAC PMO

1455 Frazee Rd. Ste 900

San Diego, CA 92108

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REVISED ENGINEERING/COST ANALYSIS
SOLID WASTE DISPOSAL AREAS
SITE 12, OLD BUNKER AREA
FORMER NAVAL STATION, TREASURE ISLAND

TREASURE ISLAND, CALIFORNIA
PUBLIC MEETING

Tuesday, October 24, 2006

Casa de la Vista (Building 271)
Treasure Island, California

Reported by: Valerie E. Jensen, CSR No. 4401

JAN BROWN & ASSOCIATES
CERTIFIED SHORTHAND REPORTERS
701 Battery Street, 3rd Floor
San Francisco, California 94111
(415) 981-3498

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PARTICIPANTS

AGENCY, NAVY STAFF AND CONSULTANT REPRESENTATIVES:

JAMES SULLIVAN, Navy BRAC Environmental Coordinator
for the Former Naval Station Treasure Island
DAVID RIST, Department of Toxic Substances Control
RICHARD PERRY, Department of Toxic Substances

6 Control
CHARLES PERRY, Navy
7 JILL VOTAW, Navy
ANITA LARSON, Tetra Tech
8 CRIS WILLIAMS, Tetra Tech
VICTOR EARLY, Tetra Tech
9 TOMMIE JEAN DAMREL, Tetra Tech
JIM WHITCOMB, Tetra Tech
10 PETE BOURGEOIS, Shaw Environmental & Infrastructure
LISA STAHL, Shaw Environmental & Infrastructure

11

12

13 COMMUNITY MEMBERS AND INTERESTED PARTIES:

14 MIARIAN SAEZ, Director of Treasure Island
MARC McDONALD
15 LOREN SANBORN, John Stewart Company
REGINALD HAIRSTON, John Stewart Company

16

17

18

19

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1 OCTOBER 24, 2006 7:00 P. M.

2

3 MR. SULLIVAN: Hi. Good evening. I'm Jim
4 Sullivan from the Navy. Some of you might have seen
5 me over the years at various meetings or riding the
6 108 bus. I've been here, since 1990, working on the
7 island, both in the military and now as a civilian
8 working for the Department of the Navy.

9 I'd like to thank you everyone for coming
10 out tonight. I'd like to thank you everyone who came
11 out to the poster session that we had from 6 to 7 p.m.

12 We'll still have these posters up at the end of the
13 meeting, and we'll be here to talk with you further.

14 There was information in the back, which
15 I hope you either received in the mail or have had
16 an opportunity to pick up here tonight. We issued
17 a fact sheet a couple of weeks ago, and then we sent
18 out a postcard a few weeks ago, also.

19 Just a note on logistics. We have a
20 stenographer here tonight to record the meeting.
21 So, if you are making oral public comment, we
22 request that you provide your name and, as best you
23 can, enunciate, so we can capture your comments as
24 accurately as possible. We also have comment cards
25 available.

3

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1 And then we're also in a public comment
2 period that started on October 12 and runs through
3 November 11, and we'll also be taking written comments
4 by mail or e-mail. So, we want to do everything we can
5 to facilitate your being able to give us feedback on our
6 projects.

7 Also, I wanted to note that I understand
8 that you received a letter from your housing manager
9 regarding the Navy's project, which also included
10 information about tonight's meeting. I just wanted
11 to note that the eventuality or the requirement --
12 potential requirement to do cleanup in the leased
13 areas was part of the original lease between the Navy
14 and the city. So, this was provided for in the lease.
15 And any questions you have concerning your leasing
16 arrangement, you should address that to your housing
17 management office.

18 MS. SAEZ: If I may?

19 MR. SULLIVAN: Yes.

20 MS. SAEZ: Hi. Mirian Saez. I'm the new
21 Director of Treasure Island.

22 And I also want to extend a thank you for
23 being here this evening and to the Navy for providing
24 this opportunity to look and ask questions and get
25 information.

4

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1 I just want to remind you of the November 11
2 date. If you have concerns or suggestions, November 11
3 is when the Navy should receive all your comments.

4 Additionally, on November 8 we'll be
5 having a TIDA meeting. The Navy again will make its
6 presentation to the TIDA Board. And you'll have the
7 opportunity then, too, to make public comment on the
8 plans for the things before you today.

9 So, I just want to say please take the
10 opportunity and provide comments in a meaningful way,
11 so that they understand what your concerns are and so
12 they can be developed into the plan as we go forward.

13 Thank you.

14 MR. SULLIVAN: So, tonight, kind of the big
15 picture is the Navy is planning to do cleanup in the
16 green fenced areas -- which I'm sure most or all of
17 you are familiar with. We're here tonight to talk
18 about the alternatives we developed for doing that
19 cleanup and to give you an opportunity, either tonight
20 or later, through the 11th, to provide us with your
21 feedback. We really value feedback from the residents,
22 and we hope that, if you have comments, that you'll
23 provide that to us.

24 So, the format of tonight is I'll make a
25 presentation and provide an overview, and then we'll

5

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1 open the floor to public comment. And the floor will
2 remain open until 8:30. I mean, we'll be here as long
3 as there's people here. We wanted to provide ample
4 time for your comments. The majority of the time from
5 7:00 to 8:30 is meant to be available to you for your
6 comments, but I'll start off with a presentation.

7 So, this is an outline of the presentation.

8 I'll talk a little about the site history,
9 just a little bit about definitions. I'll talk about
10 the sites, talk about the specific chemicals and then
11 what the objectives of the cleanup are and then what
12 the actual alternatives are.

13 Next slide, please.

14 Site 12 history. Originally, Treasure
15 Island, of course, is a manmade island. It was built
16 in 1936 and '37 from material dredged from San Francisco
17 Bay for use in the 1939-1940 World's Fair. The area at
18 the north end of the island was -- from, I think, about
19 13th Street northward was the parking lot for the
20 World's Fair.

21 After the fair ended in 1940 and with
22 the potential for World War II, starting in late 1940,
23 the Navy started use of Treasure Island and eventually
24 occupied all of the island for use as a Navy base
25 during World War II and up until the time that the

6

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1 base closed in 1997.

2 So, the north end of the island started out

3 as open space. Later the Navy placed ammunition bunkers
4 and storage areas at various locations.

5 If you've seen our photographs in the
6 back that show the timeline, you can see the actual
7 ammunition bunkers and some of the other features that
8 were on the site before the housing was built in the
9 1960's.

10 And so, in terms of the Navy's cleanup
11 program, we designate sites by number. So, this
12 particular area came to be known as Site 12. And,
13 generally, there's a name associated with the number.
14 So, because of its use as a bunker area, Site 12 was
15 originally identified as the Old Bunker Area. And
16 that's the name that continues to be used in our
17 documentation today.

18 From what we can -- from records, it doesn't
19 appear that the bunker area was used very heavily for
20 ammunition purposes. The records indicate it was used
21 for general storage purposes or storage of delicate
22 materials, such as film reels. In fact, we read that
23 story, and in one of our investigative excavations,
24 we did actually find some film reels. So, it was
25 interesting to actually find something in the field

7

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1 that correlated to the information that we had read.
2 Unfortunately, the film was either blank or had
3 corroded, so we never knew what was on the film.

4 So, largely, the area was open space, you
5 know, punctuated by these bunkers and some areas where
6 both vehicles and material was stored.

7 Through the Navy's investigation, through
8 extensive investigation that started in the 1990's

9 and continues through today, we've investigated the
10 whole of the housing area and many other areas on
11 both Treasure Island and Yerba Buena Island, and we've
12 identified areas within the Site 12 housing area where
13 waste, construction debris and incinerator ash have been
14 disposed of. And these are primarily in the areas along
15 the shoreline, which are identified in green on our maps
16 and, in general, through the green fencing that we
17 placed in January of 2001.

18 So, across the entire housing area, these
19 discrete green-shaded areas that you see on our maps
20 are the areas that were the primary disposal areas
21 for this waste and debris. In some cases, it was just
22 broken up and buried. In other cases, it was actually
23 incinerated, so that we might see partially-incinerated
24 material or just ash material.

25 Beginning in the 1960's, the housing was

8

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1 constructed in sequence, beginning with the 1100
2 housing in the 1960's, and then continuing into the
3 1200 and the 1300 housing in the late 60's and early
4 70's. And then the last of the housing was
5 constructed -- the 1400 series was constructed in
6 1989. So, eventually, the whole north end of the
7 island was blanketed with housing.

8 Next slide, please.

9 This is a 1945 photograph. 1945 pretty well
10 represents the peak of military activity on Treasure
11 Island. We had a runway here, which, although it was
12 built, appears to have been little used as a runway.
13 It shows up much better on our photograph in the back.
14 Even in this photograph you can see the little dots

15 that are actually vehicles. It wasn't used very much
16 as a runway, but it eventually became a very long
17 parking lot. Then there was a recreational field
18 here that had been used throughout the war years and
19 eventually became the elementary school area.

20 These are the actual bunkers here, mostly
21 in this area here. And then this is the outline of
22 the green areas that we're addressing, that we're
23 planning to address in this cleanup, most of which
24 are enclosed within the green fences. It consists of
25 an area along Northpoint Drive, Bayside Drive, Lester

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1 Court and Westside Drive and then Bigelow Court.

2 I do want to note that, while we're
3 addressing Bigelow Court in the planning process here,
4 we're continuing some work in adjacent Halyburton Court.
5 So, we plan to actually do cleanup area at Bigelow Court
6 at a later date so we can combine it with the work at
7 Halyburton Court, so we can do all the work in one
8 project and get in and get out and minimize the amount
9 of disturbance. But for the documents we're talking
10 about tonight and that you might read, it includes all
11 of these green areas, including Bigelow Court.

12 Next slide.

13 This is just a later photograph showing the
14 beginnings of the 110 series housing here and then
15 the 1200 series housing. The 1200 and 1300 series
16 had not yet been built. Bunkers are still here.
17 The recreational field is still here.

18 Next slide, please.

19 Definitions. CERCLA is the Federal
20 program that governs the Federal cleanup of sites.

21 The objective is to clean up or remove hazardous
22 substances from the environment and to monitor any
23 release or threat. Our ultimate objective is to
24 mitigate or prevent damage to the public health or
25 welfare or the environment. So, our number one mission

10

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1 is to provide a safe environment for both humans and
2 the ecological environment.

3 Next slide, please.

4 In terms of cleanup actions, there's three
5 types of cleanup actions at this phase. That would
6 be emergency, time critical and non-time critical.
7 Emergency is do it now. Time critical is you need to
8 do it really quickly, in the next six months or so.
9 When we did the Halyburton work, we did that as a
10 Time Critical Removal Action because we wanted to
11 get the work done during the summer, before the
12 elementary school opened in the fall of that year.
13 And then there's a non-time critical removal action,
14 when you have more time to plan.

15 In a time-critical removal action, you
16 don't have the opportunity to spend a lot of time
17 in alternatives or to seek a lot of comment; and you
18 make a decision that you need to do something sooner,
19 rather than later; and you get out and do it. In the
20 non-time critical removal action, such as what we're
21 talking about tonight, you have time to plan and, as
22 a consequence, time to look at different alternatives
23 and provide an opportunity for public comment and review
24 of those various alternatives. So, this is what we're
25 talking about tonight.

11

1 Next slide, please.

2 Again, another geographic slide just
3 showing some general features, what we're calling the
4 1231-1233 area. We, basically, come up with these names
5 just to geographically identify the areas. Since the
6 principal fenced areas here were 1231 and 1233, that's
7 what we're calling this area. Likewise, 1207, 1209
8 and two other vacant buildings along Bayside Drive.
9 And then Areas A and B, also known as Lester Court
10 and the Westside Drive area. And then Bigelow Court.

11 The violet-hatched areas represent areas
12 in which we have previously conducted soil removals.
13 We did some work in the Bayside Drive area in 1999.
14 We did soil removal in Halyburton Court in 2000. We
15 did work at 1133 Mason Court also in 1999. And then
16 we did a couple other smaller removals in 2002. And
17 then this also shows the extent of the fenced areas.

18 This shows up much better in an actual
19 printed figure than it does here on the slide.

20 Next slide, please.

21 This is just, again, a blow-up of the
22 previous slide just showing a little more detail.
23 This is the fenced area surrounding the -- this is
24 Lester Court. This is Westside Drive. So, this is
25 just a blow-up of the Lester Court and Westside Drive

12

1 area. This is Building 1133, Mason Court. That's --
2 the violet area is the area of soil we removed. Then
3 this is the Halyburton Court area, where we also did a
4 soil removal.

5 Next slide, please.

6 This is Bayside Drive and Northpoint. This
7 shows the extent of the fencing in the Northpoint Drive
8 area. We had not previously conducted any soil removal
9 in Northpoint Drive.

10 This is the Bayside Drive area, where we had
11 done some work in Buildings 1207, 1209 and in the street
12 area. If you happen to be driving down Bayside Drive
13 and you're in front of 1207, you'll see the pavement
14 looks noticeably newer -- relatively newer. That was
15 the soil removal that we had done in the spring of 1999.
16 This was a smaller amount of soil removal we had done in
17 the Gateview Court area.

18 Next slide, please.

19 MS. LACY: What's the solid purple?

20 MR. SULLIVAN: I think that's an artifact.
21 I don't think that's meant to be there.

22 MS LACY: It says up there in the key, but I
23 can't read it.

24 MS. DAMREL: It says, "Dioxin boundary."

25 MR. SULLIVAN: This is an area where we had

13

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1 identified some dioxins, not to the extent that we need
2 to take a cleanup action now. But we will be evaluating
3 that area further to determine if any cleanup is
4 necessary.

5 Thank you for pointing that out.

6 What do we know about these areas? Debris
7 and waste material was disposed of prior to the housing
8 being constructed.

9 We've gone in and sampled these areas
10 extensively. We've taken soil samples, taken

11 groundwater samples. We visually inspected the soil.
12 The samples that we had analyzed chemically indicate
13 that the principal chemicals of concern are lead,
14 PCBs, dioxins and PAHs, lead principally coming from
15 lead-based paints which were used up until 1978, PCBs
16 used in electrical equipment. And then dioxins and
17 PAHs are byproducts of incineration of material.
18 But in general terms, from highest to lowest, most
19 of what we see is lead, then, secondarily, PCBs, and
20 then, to a lesser extent, dioxins and PAHs.

21 There's also an area of methane in a
22 vacant area of Westside Drive, a small area. It's
23 vacant. That's the only area where we've identified a
24 significant quantity of methane. That may be the result
25 of some decomposing material. It's actually underneath

14

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1 part of Westside Drive. So, we haven't been able to
2 get a lot of sampling of it directly, but we've measured
3 the methane.

4 We're going to be addressing that in this
5 cleanup action. So, we'll dig up that area, identify
6 the material that's causing the methane and then remove
7 it.

8 Next slide, please.

9 So, in terms of risk, the areas with the
10 highest concentrations of contamination have been
11 located. These are the green fenced areas, some
12 limited areas adjacent to them. We developed cleanup
13 levels with input from what we call -- the BRAC Cleanup
14 Team is a partnership between the Navy, the California
15 EPA and the U.S. EPA. We developed cleanup levels
16 in association with those agencies as well as other

17 Federal and state regulatory agencies. So, all of it
18 is done in a partnership and under the oversight of
19 other agencies. This is not something the Navy just
20 comes up with on their own.

21 Next slide, please.

22 So, our ultimate objective is to reduce
23 the potential for contact with chemically-contaminated
24 soil in these areas, both for the current land use as
25 a housing area and also for the continued maintenance

15

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1 and operation of the underground utilities. So,
2 while -- some of the utilities may be as deep as four
3 feet. So, while the first couple feet could be clean
4 and not normally be exposed to typical residential
5 activities, there would be occasions when maintenance
6 and operation of the utility systems would require
7 there to be deeper excavations. So, we want to
8 provide for both of those eventualities to make
9 sure everyone is safe and sound.

10 Next slide, please.

11 These are the cleanup actions, the cleanup
12 levels that we have developed for this project.

13 I won't read through the whole thing.

14 We developed separate cleanup actions
15 for lead, PCBs, PAHs and dioxins. They're different
16 materials, so there's going to be different cleanup
17 levels for each one of those individually. And then
18 we'll also be using not only chemical analysis but
19 visual analysis to help identify the amount of
20 material that we remove in the field.

21 Next slide, please.

22 These are the alternatives.

23 This slide is definitely hard to read up
24 here. It's in much greater detail and much more
25 readable on the individual panels that we have in

16

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1 the poster session.

2 But Alternative 1 is, basically, to remove
3 soil to a depth of two feet, excluding hardscape areas,
4 not including hardscape areas.

5 Hardscape areas would be things like concrete
6 driveways and sidewalks. And those could act as an
7 adequate cap on any contaminated soils that might lie
8 underneath.

9 So, Alternative 1 is dig up the soil to two
10 feet, leave the concrete, but where utilities extend
11 down to four feet, to make sure that we're digging out
12 any soil around those utilities down to a depth of four
13 feet. So, that's Alternative 1.

14 Next slide.

15 Alternative 2 is similar to Alternative 1,
16 except that it would include the hardscape. We would
17 dig up all of the non-concrete areas, as well as the
18 concrete areas, to a depth of two feet and up to a
19 depth of four feet wherever there were buried utilities.

20 Next slide.

21 And the first two slides are generally
22 referred to as "shallow excavation" because it's
23 predominantly two feet.

24 Alternatives 3 and 4 represent a deeper
25 excavation. That would be to a depth of four feet in

17

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1 all of the non-concreted areas but not including the

2 concrete.

3 Next slide.

4 Alternative 4 would be similar to Alternative
5 3. It would be four feet, but it would also include
6 the concrete areas. So, this would represent the most
7 amount of soil removal.

8 And then Alternative 5 is a different
9 alternative than Alternatives 1 through 4.

10 Alternative 5 is -- instead of actually digging up
11 soil, Alternative 5 is placing a concrete cap over
12 all of the non-paved areas. So, if you can picture
13 the fenced areas and picture concrete within the
14 boundaries of the fence line and, in some areas,
15 outside of the fence line.

16 We would then have to provide for some
17 drainage system because, whereas, this area
18 previously -- water was soaked up in the soil, if
19 it's concreted, we have to provide additional drainage
20 to make sure that the water drains off the site. And
21 then there would also be some gas venting to make sure
22 that, if there is any methane gas anywhere, that it has
23 an opportunity to get out from under the concrete.

24 So, Alternative 5 is a different approach
25 than Alternatives 1 through 4, and the soil would be --

18

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1 but the ultimate objective would remain the same: to
2 remove the opportunity for any contact from the soil
3 below by capping it with concrete.

4 Next slide, please.

5 This is a table looking at all of the
6 Alternatives, 1 through 5, both in terms of the
7 actual area to be excavated and then the resulting

8 volume and then the estimated cost, in order to provide
9 some method of comparison. So, Alternative 1 is an area
10 of approximately 209 thousand square feet. That results
11 in a volume of about 15 thousand cubic yards and would
12 cost 7.3 million dollars for the entire project.

13 Alternative 2, which includes removing
14 concrete -- so, consequently, the area increases a
15 little bit. So, the difference between 209 and 228 is
16 the area that's covered by concrete. So, consequently,
17 also the volume of soil would go up by about 1400 cubic
18 yards, and then, also, the associated cost would go up.

19 Alternatives 3 and 4, which are an excavation
20 depth of four feet, the actual areas are the same as
21 Alternatives 1 and 2; it's just that the depth is
22 deeper. So, consequently, the amount of soil excavated
23 is approximately double, 30 thousand and 33 thousand
24 cubic yards. The actual cost doesn't quite double
25 but goes up to 11.2 million and 12.3 million.

19

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1 And then Alternative 5, which is the
2 concrete capping. Again, the area is the same. The
3 square footage is the same. There is a small amount
4 of soil excavation even if you're going to concrete
5 cap, because the surface needs to be removed to a
6 depth of about six to 12 inches to make sure that
7 the concrete would match up with any existing pavement
8 and provide some bedding for the concrete. So, even
9 concreting -- you wouldn't just concrete over the
10 grass. Even concreting would involve some lesser
11 amount of soil removal to prepare the area for concrete,
12 just the same as you might prepare the area for a new
13 road or driveway or a building foundation. And the cost

14 of that is, consequently, less, 3.6 million because
15 a lot of the cost is tied up in the cost to actually
16 remove the soil and truck it to an approved landfill.

17 Next slide.

18 All these costs were developed using
19 standard costing methods and actual data where
20 available.

21 Thank you.

22 The schedule. We're in the 30-day public
23 comment period right now. It began on October 12 with
24 the release of the engineering analysis document for
25 a 30-day public comment. So, at that time we sent out

20

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1 a fact sheet to everyone. The fact sheet provides a
2 summary, but the actual detailed document is available
3 in our information repositories both in the San
4 Francisco Main Library Technical Documents Room and in
5 our Navy offices in Building 1 at the opposite end of
6 the building from the -- on the first floor, at the
7 opposite end of the building from the John Stewart
8 offices. We're directly below the TIDA offices on the
9 first floor. So, we maintain an information repository
10 there of documents not only for this project but for
11 all of the work we're doing on Treasure Island and
12 Yerba Buena Island. It's available for public
13 inspection and review.

14 So, we're in the public comment period now.
15 This meeting is part of that public comment period.

16 After we receive all of your comments,
17 we'll be evaluating them. And we'll have a draft of
18 our selected alternative available about a month later,
19 on December 13. But just prior to that date -- two

20 weeks prior to that date we're planning to have another
21 public meeting, similar to tonight's meeting, at which
22 we're going to discuss the selected cleanup alternatives
23 and plans for starting the work in late January,
24 February.

25 We'll actually issue a written document on

21

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1 our selected cleanup on December 13. And then that
2 would have another 30-day public comment period that
3 would extend through January 12. Then we'll evaluate
4 any comments that you might have on our selected cleanup
5 alternative. And then we'll issue a final document on
6 the cleanup decision on or about January 22.

7 And then, in the weeks thereafter, we'll be
8 starting to bring equipment onto the site and starting
9 work in late January or -- and early February. But
10 work would -- as soon as this document is completed,
11 we would be bringing -- at least beginning to bring
12 some equipment onto the site, so you would start to
13 see some activity in and around the fenced areas.

14 Also, you might start to see even in the
15 next couple months -- we're going to be bringing in
16 some clean soil from offsite. As we can identify and
17 purchase that, we're going to be bringing that in even
18 before the end of the year. So, you might start to see
19 some soil stockpiles at the north end of the island,
20 not in the housing area but somewhere south of the
21 13th Street -- somewhere south of the school area.
22 We're still working out the details on that.

23 Next slide, please.

24 Construction health and safety. On a project
25 like this, health and safety is always number one. We

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1 will have a very-extensive dust control and monitoring
2 program.

3 For those of you who might have been here in
4 2000 when we did the Halyburton Court soil removal, we
5 had a very similar dust control program, both in terms
6 of how we do the work, making sure no dust is generated,
7 things are kept wet, to actually having equipment both
8 at the excavation and at the edges of the work area,
9 between the work area and the housing area, that's
10 continuously monitoring for dust. So, if there are
11 any indications that -- so, the work would always be
12 done in a controlled manner. If there are any issues
13 that develop, we would shut down the work and address
14 the issue before we continued our work. So, this will
15 probably be -- basically, our number one concern will
16 be dust control and monitoring.

17 There will also be traffic control and
18 notifications. If there's any changes in traffic,
19 we would provide notifications to the residents.

20 We don't anticipate any utility outages as a
21 result of this project, but in the event that there is
22 an outage -- in some cases, when you expose a utility,
23 sometimes it breaks. We hope that doesn't happen.
24 But if it does, we would provide notifications. We'll
25 be working closely -- we already do work very closely

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1 with the city and the Public Utilities Commission so
2 that we can be able to address any utility outages
3 promptly and minimize the impact.

4 And then, lastly, because this material
5 had been disposed of here in the past, while there
6 is no record and, through previous investigation,
7 we've encountered no sign of any radiological material,
8 radiologic activity did go on at the base as part of
9 the Navy's school program here. And we developed a
10 document called a Historical Radiological Assessment.
11 I believe it was last year that we sent out a fact
12 sheet on the radiological program.

13 Because of the fact that radiological
14 activities did occur on the base as part of the
15 Navy's regular training program, as a precaution,
16 we're going to go ahead and screen all of the material
17 that we might be excavating from the housing area,
18 strictly as a precaution. And we've done that in the
19 past, and we have, to date, identified no radiological
20 material in areas that would need to be addressed.

21 Also, too, as a normal course of business,
22 for the last number of years, all of the landfill sites
23 have radiological monitors for any material entering
24 the site. So, we've had numerous truckloads of
25 material, over the years, leaving the base and going

24

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1 to landfill sites, and there's never been any indication
2 of any problems. So, purely for precautionary and
3 conservative reasons, we're going to go ahead and
4 screen everything, so that we can certainly address
5 anybody's concerns or questions by saying, "Did you
6 test for this?" "Yes, we did."

7 Next slide.

8 Comments. We need to get your comments
9 by November 11. You can e-mail them to me. Or you're

10 welcome to -- you can either mail them or e-mail them.
11 Then we'll take your comments at this meeting, as well
12 as any other public forums between now and November 11.
13 And then we also have an opportunity for you to submit
14 written comments here tonight. We have comment sheets.

15 So, with that, that's the extent of my
16 presentation. So, I now want to open the floor to
17 your public comment.

18 Again, if you would like to make public
19 comment, please state your name, so that our
20 stenographer can best record it.

21 Yes, ma'am?

22 MS. RAPPAPORT: Emily Rappaport.

23 I have, actually, questions, not comments.

24 The question I have is, between Alternatives
25 1, 2, 3 and 4, what would be the time difference?

25

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1 Would it take longer to do the work? Would there
2 be a greater disruption with the deeper digging?

3 And the second part is, eventually, with
4 the redevelopment, are you going to have to come back
5 again and clean other sites that haven't been cleaned
6 because you're doing around the pads, et cetera?

7 MR. SULLIVAN: Let me answer the second
8 question first for clarification purposes.

9 The objective of this cleanup is to make
10 the area safe and suitable for its continued use
11 as a residential area up until the time that it's
12 redeveloped at some point in the future. At some
13 point in the future when the buildings are demolished
14 and any related concreted areas that have not been
15 removed are demolished, then additional cleanup might

16 have to be taken by the developer.

17 And I believe, from just my personal
18 reading of the developer's plan that I've seen in the
19 public meetings, that there's already some accounting
20 for future environmental cleanup associated with the
21 future demolition of buildings. But that wouldn't be
22 necessary until the housing area is transitioned.

23 If that addresses your question.

24 MS. RAPPAPORT: Yes.

25 The first part of the question. As far as

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1 when you're doing this work currently, digging four
2 feet down and taking the concrete off -- I mean, doing
3 a really good, solid clean, how much longer would it
4 take than doing the two-foot alternative?

5 MR. SULLIVAN: The difference between the
6 concrete and -- excluding the concrete and including
7 the concrete is actually pretty small because it's
8 not actually that great amount of area that's actually
9 concrete. So, the difference is in time -- even on
10 this slide --

11 Maybe we can flip back to the slide with
12 the alternatives, with the table.

13 The actual difference between concrete and
14 excluding or including concrete in each of the pairs
15 of alternatives is actually very small. The big
16 difference is between the two foot and the four feet.

17 MS. RAPPAPORT: And the time differential
18 between the two. In other words, is it going to take
19 longer to take the four feet out? How much would it
20 extend the project?

21 MR. SULLIVAN: Pete?

22 I'm asking Pete Bourgeois, from Shaw
23 Environmental, who's our contractor, who is actually
24 going to be conducting the work.

25 MR. BOURGEOIS: Yeah. It is going to be a

27

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1 difference. It'll be in months, due to the fact that
2 digging four feet takes quite a bit more, considering
3 utilities and things we run into, whereas, a two-foot
4 dig, you wouldn't have as much an issue there.

5 So, I can't give you "It's going to be five
6 months and three days." I'm not sure yet. I would say
7 in months.

8 MR. SULLIVAN: There's a certain portion
9 of the project at the beginning and the end which is
10 independent of whether you go two feet or four feet.
11 The middle part of it is where you're actually doing
12 the digging of two feet and four feet. The actual
13 difference in time is a few months.

14 So, it's not -- depending on how you consider
15 the time, it's not really -- it may not be that great a
16 difference time-wise.

17 Yes, sir?

18 MR. MacDONALD: Eugene MacDonal d.

19 My question would be about the fresh water
20 utilities.

21 What depth is that? Because if you do the
22 shallow dig, it's still contaminated earth around the
23 pipes, which would mean the lead, dioxins and stuff
24 could get in the water.

25 MR. SULLIVAN: First of all, the water is

28

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1 tested. Pipes are sealed.

2 MR. MacDONALD: Not really.

3 MR. SULLIVAN: And a potable water system
4 is a pressurized system, so water goes out, rather than
5 in.

6 MR. MacDONALD: Anyone knows, if you have
7 a break in your system, contaminants can get into your
8 plumbing and contaminate several days or weeks or months
9 afterwards.

10 MR. SULLIVAN: We don't see that as a source
11 of contamination to the potable water system.

12 MR. MacDONALD: I think, at four feet, it
13 would be.

14 MR. SULLIVAN: I think the main intent
15 of digging around the utilities -- well, we would
16 be digging around the utilities in any of these
17 alternatives, 1 through 4. So, even in the two-foot
18 alternatives, if the water pipe is at three feet and --
19 the area where the water pipe is we're going to dig
20 to at least three feet. So, we're going to excavate
21 around -- I can tell you all of the potable water
22 system is within the first four feet. The only piping
23 that is really -- that might potentially be four feet
24 or deeper is piping that's designed by gravity.

25 There might be some sanitary and might be

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1 some storm, but, specifically, in terms of the potable
2 water, all of that system is within the first four feet.
3 So, in either one of the alternatives -- 1, 2, 3 and
4 4 -- even if we're only digging the majority of the
5 area at two feet, we would dig to whatever -- we would
6 dig all around the potable water pipe.

7 MR. MacDONALD: What distance?

8 MR. SULLIVAN: For the length of the pipe
9 that's running --

10 MR. MacDONALD: I'm saying the pipe is
11 four feet down. Are you going to dig, like, one foot
12 around the pipe and backfill with gravel or something?
13 Do you dig outside 15, 20 feet from the pipe or what?

14 MR. SULLIVAN: We would dig to -- we would
15 dig to an amount that would be normally -- that you
16 would normally encounter if you were doing a repair
17 to that pipe.

18 MR. BOURGEOIS: Usually, six inches all the
19 way around the pipe would be removed.

20 MR. SULLIVAN: Yes, ma'am?

21 MS. LACY: My name is Paoli Lacy, P A O L I,
22 Lacy, L A C Y.

23 Back to her question about time. What is
24 the time frame of how long any of these options takes?

25 Okay. So, it's a difference of a few months.

30

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1 Say, if option one happens, how long would that take?

2 If option four happens, how long would that take?

3 An estimate.

4 MR. SULLIVAN: An estimate. Well, we
5 haven't defined the length of each alternative down
6 to --

7 MR. EARLY: Victor Early. My name is Victor
8 Early.

9 For the engineering document, we estimated
10 about three months for the shallow excavation and about
11 six months with the deeper excavation.

12 MS. LANDERS: I'm La Rae Landers with the

13 Navy.

14 To add a little more to that, that time
15 frame, to get a little more clarification what it
16 entails. We've got to prepare the site and take the
17 current grass off. That would be excavation, backfill.
18 Then you've got to put the backyards back, put sod down.

19 MR. EARLY: Start to finish.

20 MS. LANDERS: The actual excavation and
21 backfill would be maybe a couple months, three or
22 four months.

23 MR. EARLY: The entire alternative, from
24 start to finish, with the shallow one, would be about
25 three months. For the deeper one, it would be about

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1 six months.

2 MR. SULLIVAN: So, it would be about a
3 three-month difference, approximately.

4 Yes, ma'am? I'll take you first.

5 MS. FRANSON: Claudia Franson. I live on
6 Bayside right in one of the little green areas.

7 My daughter has high levels of lead already
8 in her blood. And it's from the dirt around our house,
9 apparently, from what we've been told. She's already
10 not allowed to play in the dirt; "Wash your hand."

11 I'm really happy that you're doing this
12 project. It's really important for me. But I'm
13 terrified about the prospect of digging up my whole
14 front, back and side yard and trying to get my daughter
15 to and from the car. She's 17 months old, and she's
16 a Tasmanian devil. She likes to be on the ground.
17 You may be monitoring dust levels, but I'm terrified
18 of how high her lead is going to be if you're digging

19 it up.

20 And how do you decide who stays in the house
21 or moves out? Children are so much more vulnerable to
22 the lead than adults.

23 UNIDENTIFIED SPEAKER: You better move.

24 MS. FRANSON: How do you decide who stays
25 or moves or is it safe to live there? When is the

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1 decision made?

2 That's a big question, I know, but...

3 MR. SULLIVAN: Yeah.

4 That's part of the planning for actually
5 doing the project. We're at the stage now of looking
6 at these alternatives. For all of these alternatives,
7 1 through 5, the number one priority is always going
8 to be the health and safety of everybody who lives on
9 the island, whether it's an adult or, particularly, a
10 child. So, we would not be conducting any excavation
11 type work unless it was within strict accordance with
12 dust control measures, both in terms of how we do the
13 work and, as a backup to that, actually measuring the
14 dust out into the field to make sure it doesn't exceed
15 the standards.

16 So, at no time in the project would we allow
17 anyone living or working at or near the work site to
18 come in contact with any amount of soil that would not
19 be appropriate. So, safety is always going to be our
20 number one consideration. That's why the green fences
21 went up.

22 That's why -- there is a couple of
23 buildings adjacent to the green fences where we
24 had identified some elevated areas of lead and PCBs.

25 And, consequently, we went into those backyards back

33

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1 in 2001, and we had either put down paving stones or
2 we had replaced the sod.

3 Then we continued to maintain -- there's
4 about 12 of those backyards now in the Bayside and
5 Northpoint Drive area. Our contractor, Shaw
6 Environmental, has continued to maintain those
7 paving stones and that grass since that time. And,
8 if necessary -- it's occurred a few times -- to
9 replace stones, replace grass, to make sure there's a
10 solid cover between the surface and what's beneath the
11 surface.

12 MS. FRANSON: This is not -- I should contact
13 you. I'm sorry.

14 MR. SULLIVAN: If you want to address it --

15 MS. FRANSON: It's not relevant to this
16 conversation.

17 UNIDENTIFIED SPEAKER: Actually, it is very
18 relevant.

19 MS. FRANSON: I'm wondering why certain
20 backyards in my little row have paving stones and
21 certain ones don't. Mine doesn't. Our backyard
22 has lead in it. The front yard has more lead in it.

23 I don't understand why we're picking and
24 choosing backyards. It seems like it's not straight
25 lines that lead is exposed to. So, why are some --

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1 like, a fence separates three feet of property, and
2 houses are here that people are living in, and houses

3 here are fenced off?

4 MR. SULLIVAN: All of this was a result
5 of sampling throughout the housing area. We went
6 through all the front yards. We went through the
7 entire common area and backyards in areas close to
8 where we had identified debris disposal. So, we've
9 sampled throughout the housing area.

10 Where we had identified samples with
11 elevated detects of lead, PCBs, PAHs or dioxins,
12 if there was a need to take action, we took action,
13 either by that building, you know, not being leased
14 out and, also, the green fences being placed. In
15 the case of some buildings that had -- a couple of
16 buildings that had already been leased out, as a
17 result of sampling in the backyards, we went in and
18 put in either paving stones or sod. There were many
19 other backyards in that area that we had also sampled
20 and, as a result of the sampling results, there was no
21 need to put down sod or paving stones. So, all those
22 decisions were a result of actual sample data we had
23 collected from those specific backyards.

24 MS. FRANSON: So, we had the Department
25 of Public Health come out and sample our front and

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1 backyard.

2 Is it then plausible to have paving stones
3 put down in all the backyards as a temporary measure
4 for the next six months before something starts
5 happening? Does that seem like it would be
6 reasonable?

7 I don't know how long it takes.

8 MR. SULLIVAN: I can talk to you offline

9 about your specific situation. But all of the
10 backyards we had -- we had sampled all of the
11 backyards in those areas. If there was a need to
12 put down -- based on the sample results, if there was
13 a need to put down paving stones or sod, we did. If
14 the test results came back indicating we didn't need
15 to do it, then it wasn't done.

16 But I'm happy to talk to you about your
17 specific situation.

18 Yes, ma'am?

19 MS. LACY: It's about her situation, but
20 it applies to all of us.

21 I mean, it sounds like the Department of
22 Public Health came up with different results than the
23 Navy in the sampling, because if the Navy had come up
24 with the same results --

25 MS. FRANSON: It would depend on what is a

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1 hazardous level. They found lead. I don't know that
2 it met their requirements.

3 MS. LACY: I guess that's a question.
4 What are the levels that are considered hazardous?

5 And, also, apparently there was this
6 business of -- when the housing was built, that soil
7 was moved in order to level it for the building of
8 housing.

9 Would that not spread contaminants at
10 various levels beneath the ground?

11 MR. SULLIVAN: The actual areas where
12 material may have been disposed of are probably
13 smaller than the extent of the green areas. Where
14 the material was originally deposited is a smaller

15 area than these green areas.

16 But you're correct. As part of the
17 construction of the housing, when the site was being
18 prepared, that material was bladed around. That's why
19 the green areas now are larger than what might have been
20 the area where it was originally deposited.

21 But we're not relying just on a construction
22 document. Actually, we're really not relying on it
23 at all.

24 The boundaries of all these areas have been
25 specifically defined, based on actual chemical sampling

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1 data. We've sampled around all of these areas. In
2 discussions with the regulatory agencies and the city,
3 based on all of that data that we've collected, that's
4 what's defined those areas. So, outside of these
5 green areas, the amount -- the concentration of
6 chemicals we've identified in the soil is much
7 different than what's inside the green areas.

8 So, if there was a need to change the
9 boundary based on the data, you know, we would change
10 it. In fact, we have adjusted our information over
11 time. But all this is based on actual hard data.
12 We've collected data throughout the entire housing
13 area.

14 I'm sorry. Yes, ma'am?

15 MS. MARTINEZ: Hi. I'm Michelle Martinez.
16 I live on Bayside Drive, too. I have two quick
17 questions.

18 One is, all of the green areas on the map,
19 will the work all start at the same time or will it go
20 in phases, like, on one street first and another street

21 second?

22 MR. SULLIVAN: Right now we're planning to
23 start all of the work simultaneously. And the reason
24 to do that is to minimize the length of the project as
25 a whole, because there's going to be trucks going on

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1 and off the island for the duration of the project.
2 So, if the project was done sequentially, that would
3 extend the total period of time that the trucks were
4 driving on and off the base. So, at present, we're
5 planning to do all of the work simultaneously to get
6 in and get out as quickly as we possibly can.

7 MS. MARTINEZ: The second question is,
8 approximately -- maybe someone else in the room knows
9 the answer.

10 Approximately how much notice will we be
11 given if we need to be displaced from our home? I
12 live across the street from the green areas, and I
13 imagine, if you're digging everything up, I may not
14 be able to put my car in.

15 Do you know about how much notice we'll be
16 given and when the decision around that time will be
17 made as to who is going to be displaced?

18 MR. SULLIVAN: That will be managed through
19 your housing manager. In the letter that you all
20 received, it indicated that sometime after tonight's
21 meeting that the housing management office would be
22 making contact with residents. So, I think -- I
23 don't want to speak directly for the housing manager,
24 but -- I'm sorry.

25 MS. SANBORN: There are actually 32

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1 households affected by whatever alternative is chosen.
2 Those people will be getting a separate letter from
3 us with the area map, so they can see where their
4 unit is in relationship to the cleanup. Then we'll
5 meet with them individually to talk about the timing,
6 the duration, the options for that, to stay in place
7 or move elsewhere on a temporary basis.

8 It's actually Francis in the back there
9 who's our liaison, who's going to work with the
10 families. It's 32 households. Each one is affected
11 differently, depending upon the removal action in and
12 around their particular building.

13 So, rather than get into all that detail
14 with the group here, this was more kind of the global
15 activity. And then we'll meet individually with the
16 affected households.

17 A SPEAKER: I'm sorry. When is that going
18 to be?

19 MS. SANBORN: I believe a letter goes out
20 tomorrow.

21 MR. HAIRSTON: That's correct. He and I
22 will, with collaborative efforts, be sending out
23 letters starting tomorrow.

24 MS. SANBORN: Starting tomorrow. But over
25 the next few days, we'll get the letters out. It's

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1 going to give you the map and tell the family they are
2 likely to be affected and to please call us to come in
3 and meet with us personally.

4 THE REPORTER: And your name is...?

5 MS. SANBORN: I'm sorry. Loren Sanborn,

6 with John Stewart.

7 MR. SULLIVAN: Yes, sir? In the white shirt.

8 MR. OLSON: Cy Olson.

9 My question is about the testing.

10 Do you know how fine of a grid you tested on?
11 You say once per backyard or twice per backyard. Then,
12 in the common grassy areas, did you do it on a 10-foot
13 grid or did you do two tests? How did you do that?

14 MR. SULLIVAN: It widely varied, depending
15 on the areas we're looking at and the areas that we
16 had -- where we had information indicating that
17 material was disposed of, the sampling was on a
18 much -- it wasn't necessarily even a grid. The
19 sampling was much closer in areas where we had
20 historical information.

21 In areas where we had no indication that
22 there might be any issues, we came back and resampled
23 the entire housing on approximately a 40- to 50-foot
24 grid, which, for environmental investigation purposes,
25 is a fairly-close spacing. So, the actual quantity of

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1 data that we have on this site is probably higher than
2 you would have on a typical investigation site.

3 We've had -- in some previous forums, we've
4 had displays showing all of the sample location points.
5 It pretty well dots the entire housing area.

6 MR. OLSON: Did you find any hot spots
7 concentrated in the fenced-off areas?

8 MR. SULLIVAN: All of the areas where we
9 feel we need to take cleanup action -- that we know
10 we need to take cleanup action, are represented by
11 the green areas. There area a few areas outside

12 there where we've seen more sporadic detects. We're
13 continuing to evaluate that in our investigation
14 program.

15 We're also in a phase called the "Remedial
16 Investigation Phase," which I think is delineated on
17 one of our timeline charts there. We'll be providing
18 a Draft Remedial Investigation report within the next
19 12 months.

20 But all those areas of definite concern are
21 represented by the green areas, but we're continuing
22 to evaluate other detects, more sporadic detects, that
23 we've gotten outside these areas. We'll be making a
24 future determination of what cleanup, if any, might be
25 required in those areas.

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1 MR. OLSON: So, you're making a distinction
2 between needing to clean up areas and areas that need
3 to have -- like, peoples' backyards, that you tell them
4 to grow grass there?

5 Those aren't represented on the map. But
6 you're making a distinction between not saying if you
7 need to grow grass and, it's not safe, so you need to
8 clean up?

9 MR. SULLIVAN: We're making a distinction
10 between areas where we have identified a significant
11 concentration of debris and debris-related chemicals
12 and the rest of the site where we haven't identified
13 that. But we're not through with the investigation.
14 Several years ago -- actually, 2003 -- there was
15 some revised guidance limiting backyard activities.
16 At the time that we can complete our investigation,
17 then we can make a determination whether restrictions

18 still need to be in place or not. But we, along with
19 the regulatory agencies, believe that we've identified
20 most of these areas of concern within the green-shaded
21 areas. We'll confirm that through the rest of the
22 evaluation of the site.

23 Yes, ma'am?

24 MS. LOWBERG: Coliba Lowberg (ph).

25 Ultimately, who has the decision making as

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1 to what alternative is going to be used?

2 MR. SULLIVAN: The Navy, as the lead
3 government agency, is the ultimate decision maker.
4 Basically, it's similar to the decision-making
5 authority the EPA has that was delegated by the
6 President to the Department of Defense or Department
7 of Defense facilities. The Navy works in concert with
8 the state regulatory agencies and, also, with the U.S.
9 EPA. So, we partner but, ultimately, the Navy makes
10 the final decision.

11 But it's clearly a partnership with the
12 state and Federal regulatory agencies and the city.
13 All of the information that we generate -- we have
14 monthly meetings, or more frequently, with both the
15 Cal EPA and the U.S. EPA, as well as the city. All of
16 the information we produce is provided to all of those
17 other parties, as well as present in our information
18 repositories to the general public. So, we work very
19 much collaboratively. But, ultimately, the Navy makes
20 the final decision, but clearly in collaboration.

21 MS. LOWBERG: So, then, the comments that
22 we basically give have no relevance to the decision
23 that's made?

24 MR. SULLIVAN: No. They have very
25 important relevance.

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1 We need to take -- we're required to take
2 your comments into consideration. And we will be
3 providing a response to all of the comments
4 received -- a written response to the comments
5 received both in this meeting as well as any e-mails
6 or written correspondence that anyone may provide up
7 until November 11. So, we will be addressing everyone's
8 comments. That's all going to be part of the public
9 record. That will all be taken into account when we
10 make the decision on which of the five alternatives.

11 It most definitely is -- that's the whole
12 reason we're here. We definitely want -- and are
13 required -- to get the community commentary.
14 Certainly, the other parties -- the regulators and
15 the city with which we work collaboratively, you
16 know -- they want to make sure that your comments
17 are included.

18 Yes, ma'am?

19 MS. SMITH: Sparky Smith.

20 I know that you said the Department of the
21 Navy had minimal concerns about utility interruptions.

22 Do you have plans in place, especially in
23 the instance of a rupture of a water main or something
24 like that, to handle that for people living here,
25 dealing with that situation?

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1 MR. SULLIVAN: Well, we work hand in hand

2 with the city Public Utilities Commission. So, we
3 have notification systems in place.

4 Well, number one, for all of the work that
5 we do, we get what's called a "Dig Permit" from the
6 Public Utilities Commission. It's very similar off
7 island or in private property. When you call the
8 utility -- which you're required to do on all
9 properties -- you call the utility locator to come
10 out and identify the utilities before you do any work.

11 So, first and foremost, we get a utilities
12 permit, or a dig permit, from the Public Utilities
13 Commission, which is currently operating the utilities
14 here on the island. Then, in addition to that, we
15 are in synch with them on their emergency notification
16 process so that we know and they know exactly what to
17 do in case there is a break -- how to secure it, how
18 to get somebody out here to fix it as quickly as
19 possible.

20 We've been working here -- we've been doing
21 excavation work here on the island now since 1999, so
22 we know a lot about the utility systems. We've been
23 through a few outages. We certainly have experience
24 in dealing with them.

25 Yes, ma'am?

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1 MS. WILKINSON: I'm sorry. Maybe you said
2 this already.

3 Where would the soil come from that you're
4 replacing?

5 THE REPORTER: Can I have your name?

6 MS. WILKINSON: Melanie Wilkinson

7 MR. SULLIVAN: Where would the soil come

8 from?

9 All of the soil we would use from what's
10 called "backfilling" would be clean soil that would
11 come from off island, from a crude source. There is
12 a process for ensuring that the clean soil is, in fact,
13 clean before we place it at the site.

14 MS. WILKINSON: Is there now one location or
15 is it kind of a collection?

16 MR. BOURGEOIS: It depends on the quantity of
17 soil you bring. It's all analyzed prior to use.

18 MR. SULLIVAN: Yes, sir?

19 MR. ACOSTA: David Acosta.

20 Why do you have alternatives? Do different
21 sections have different needs? If you determine you
22 cement the whole area or you determine just a little
23 bit -- why are there so many choices?

24 MR. SULLIVAN: We're required by regulation
25 to look at a reasonable range of alternatives so that

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1 the public and other interested parties can respond
2 to them. We are all spending -- it's all public
3 money being spent. So, some people may have concern
4 whether we're spending a little money or a lot of money
5 or whether we're digging two feet or digging four feet
6 or whether we're placing concrete or digging up soil.
7 It's to provide a reasonable range of alternatives to
8 give everyone an opportunity to comment on them.

9 MR. ACOSTA: So, if you determine -- let's
10 say five. All the area of green will go under five if
11 you determine five?

12 MR. SULLIVAN: Yes.

13 MR. ACOSTA: So, you can possibly cement

14 the whole area?

15 MR. SULLIVAN: Yes. That's what that
16 alternative would represent.

17 MR. ACOSTA: It would eliminate any green
18 grass or whatever?

19 MR. SULLIVAN: Correct.

20 MR. ACOSTA: Okay. My last -- I need to
21 make a comment.

22 Now, if you have the alternative -- let's
23 say I'm in the green area; that I'm determined to move
24 and then have to move for three months or six months
25 and then move back. Is that still a viable alternative

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1 for somebody that runs into that area? Or is it sort of
2 just one of these alternatives, we stay in our area, and
3 then you do one of these?

4 That letter we got said we could possibly
5 have to move off site.

6 MS. FRANSON: That's what they were talking
7 about with the leasing office.

8 MR. ACOSTA: I'm trying to find out if I'm
9 one.

10 Did you get a letter?

11 MS. FRANSON: No. They're sending them
12 tomorrow. That's to everybody.

13 MR. ACOSTA: Let's say it's determined that,
14 where I'm living, that I have to move. That means I
15 have to move off site?

16 MS. SANBORN: That's possible.

17 Each building will be somewhat different,
18 I'm presuming.

19 Jim?

20 MR. SULLIVAN: Yes.

21 MS. SANBORN: Not every building will be
22 affected the same way by the removal. It could be
23 only one building needs to be moved off site. It
24 could be three do.

25 We have a relocation specialist. We're

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1 going to work with each individual household to see
2 what their needs are.

3 MR. ACOSTA: What do you mean by "off site"?

4 MS. SANBORN: It depends. We've done this
5 before. Back in 2000, we moved people off site. In
6 '99, we moved people on site.

7 The unfortunate thing is that we can't give
8 you a timeline. In some cases, it could be just 30
9 days.

10 What we do is set up apartments fully
11 furnished. You take your clothes and your overnight
12 bag and live there for 30 days and come back.

13 MR. ACOSTA: So, you leave your furniture
14 and all that?

15 MS. SANBORN: You don't have to move your
16 stuff out or anything like that.

17 If you did have to move off site, we would
18 probably lease a block of units in a particular location
19 that's convenient. We've used Fox Plaza, a number of
20 different places. We furnish it. We put in all the
21 household items, linens and everything. You just take
22 your personal items.

23 I don't recall, Jim. When we did this on
24 one of the other locations, people could go back in
25 their units on a few occasions to get additional items.

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1 Am I mistaken?

2 I don't remember that.

3 MR. SULLIVAN: I don't remember.

4 MS. SANBORN: I don't remember if you had to
5 be cognizant to take a hundred percent of what you would
6 need or if there were opportunities to go back.

7 MR. SULLIVAN: I'm sure there's some degree
8 of flexibility.

9 MS. SANBORN: That's why we want to meet
10 with everybody. Some single people may say, "I'll
11 stay with my friend." Other people with children and
12 schools, it's a little more complicated.

13 But you can tell on the map back there if
14 your unit is in the affected area.

15 MR. ACOSTA: It is.

16 MS. SANBORN: Okay. In the next few days,
17 you'll get a letter and meet with Francis.

18 MR. ACOSTA: I want to make a comment.

19 If we have to move, that's a big
20 inconvenience.

21 MS. SANBORN: It is. We know that. We
22 absolutely know it.

23 MS. FRANSON: But it's worth it. It is.

24 MR. ACOSTA: I don't know. They've done
25 this in -- they dug our backyard and put sod over it.

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1 We had the choice.

2 MS. SANBORN: That's right.

3 MR. ACOSTA: What happened? It wasn't
4 complete or what?

5 MR. SULLIVAN: That was just an interim --

6 MS. SANBORN: It was an interim measure.

7 MR. SULLIVAN: It was an interim measure
8 until we could come back and do complete cleanup.

9 This would be the complete cleanup. Then
10 we'd be done.

11 I guess, maybe to clarify -- the main
12 purpose of our discussion here is to clarify for
13 you so that you can make -- we can take your comment.
14 And then, in some cases, we may need to go back and
15 address that comment.

16 But, you know, these -- there's impacts
17 with all of these alternatives. There may be a lesser
18 impact from concreting, but the end result is you've
19 got all concrete and no green. There's going to be
20 some differences between the impacts between the
21 two-foot excavation, a four-foot excavation, but the
22 end result is you either have two feet of clean soil
23 or four feet of clean soil. So, it's... As the
24 impacts go up, the benefits might -- you might
25 consider -- someone might consider the benefits to

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1 go up.

2 Yes, ma'am?

3 MS. LACY: I have another question.

4 I'm still Paoli Lacy.

5 In the cost part, does that include the
6 costs of maintenance and what might be the projected
7 costs into the future if -- I mean, for instance, if
8 it isn't excavated below hard surface? In the future,
9 that might need to be dug in, for some reason, or it's
10 all covered with concrete?

11 I mean, that has to be maintained over --

12 MR. SULLIVAN: There's a cost of maintenance
13 that's required to -- yeah. All these have a cost of
14 maintenance. Clearly, in the case of the concreting
15 alternative, there's a certain cost of maintenance of
16 that concrete cap into the foreseeable future.

17 MS. LACY: Is that included in the cost
18 estimate?

19 MR. SULLIVAN: Yes, it is.

20 I don't know, for the soil alternatives,
21 whether there is some level of maintenance for the
22 two foot versus the four foot.

23 MR. EARLY: Victor Early.

24 There's not really a lot of cost for the
25 soil excavation for maintenance that's included. For

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1 concrete, yes, there is. There's definitely maintenance
2 cost.

3 MR. SULLIVAN: We would be digging around
4 all of the utilities. So, for normal future maintenance
5 activities, even with the two-foot excavation, the areas
6 around the utilities would be clean, so there wouldn't
7 be any maintenance cost relative to future utilities
8 maintenance.

9 MS. LACY: That's assuming the land is used
10 exactly the same way it's being used right now into the
11 foreseeable future?

12 MR. SULLIVAN: Yes. Exactly. All of
13 these costs represent making the area suitable for
14 residential use into the future. If that residential
15 land use changes at some point in the future, then
16 whoever comes in to redevelop the property, there

17 might be additional costs associated with that.

18 But our objective is to make the property --

19 MS. LACY: That would probably be leased
20 with the soil excavation and the clean soil no matter
21 what happened, in terms of the future?

22 MR. SULLIVAN: In terms of its future
23 use as a housing area, we would have accounted for
24 everything here. If the housing area is demolished or
25 some new structures are built in the area, then that's

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1 something that would have to be taken into account for
2 separately. But this would account for the continued
3 use of the existing housing area into the future.

4 MS. LACY: With the existing housing, not
5 just --

6 MR. SULLIVAN: Yes.

7 MS. LACY: -- the area?

8 If the specific houses change --

9 MR. SULLIVAN: The existing buildings
10 sitting on the existing foundations, yes.

11 Yes, sir?

12 MR. BRUHL: Hi. John Bruhl. A quick
13 question.

14 What's the average penetration of
15 contaminants? Is it six inches or one foot?

16 I'm wondering between the two alternatives.

17 MR. SULLIVAN: It totally varies from
18 being --

19 MR. BRUHL: What's the max?

20 MR. SULLIVAN: The max is deeper than four
21 feet. At four feet we encountered -- the general
22 level of groundwater is about four feet. So, once

23 you hit groundwater, the ability to excavate below
24 that becomes less practical. Four feet is considered
25 to be a reasonable depth for future use, so, you know,

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1 we used the four feet.

2 MR. BRUHL: I just wanted to say, in the face
3 of adversity -- I know everybody here is facing various
4 stress levels of their own. But you guys run a fairly
5 organized thing and are looking out for everybody fairly
6 well. So, I just wanted to commend you and say thanks.

7 MR. SULLIVAN: Thank you.

8 I mean, the end result of this whole
9 project is to make the housing area a better place to
10 be. So, you know, we really believe in moving forward
11 with this project based on one of these alternatives,
12 and, you know, we're seeking your comment on these
13 five alternatives.

14 Any other comments?

15 We're pretty much on schedule. It's about
16 8:17. We kind of figured that it would run till about
17 8:30. We'll be here till 8:30 and a little afterwards.
18 We're certainly here to discuss things individually with
19 you.

20 So, if there isn't any additional further --
21 if there isn't further public comment, we'll still be
22 sitting here till 8:30. After that, we'll be here
23 informally.

24 Again, the comment period runs till
25 November 11. You're welcome to write or e-mail.

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1 Then we'll have another meeting on
2 November 29.

3 As was noted, we'll also be at the TIDA
4 Board meeting on November 8.

5 Yes, sir?

6 MR. MacDONALD: Eugene MacDonal d.

7 On the removal of soil. If they do that,
8 will it be done by truck or barge?

9 MR. SULLIVAN: It'll all be done by truck.

10 MR. MacDONALD: Woul dn' t barge be more
11 practical ?

12 MR. SULLIVAN: It's not.

13 We looked at that in the past. It's not
14 really practical to transfer material from truck to
15 barge. There's no place to directly load onto a barge.
16 So, you know, based on our previous experience on a
17 base, we're planning to do everything by truck.

18 MR. MacDONALD: Would the trucks be covered?

19 MR. SULLIVAN: Oh, yes. Most certainly.

20 There are standards for how you move soil.

21 MR. MacDONALD: I didn't know it was standard.

22 MR. SULLIVAN: Yes.

23 Yes, sir?

24 MR. MARK: My name is Bodhi Mark, B O D H I.

25 I'm curious if there's any plans for trees

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1 or, like, what the landscaping design is after, say,
2 1 through 4 and you replace the soil. Is there going
3 to be any input on landscape design from everyone in
4 the process?

5 MR. SULLIVAN: We haven't gotten to that
6 level of detail. In general, if we're removing

7 landscape, we'll be looking to put back something
8 similar.

9 I'm sure we'll be working closely with
10 TIDA and the housing management company. But we'll
11 definitely -- we're not going to make decisions on
12 our own. It'll all be in concert.

13 Yes, ma'am?

14 MS. SMITH: Sparky Smith.

15 I'm curious to know if, after the remediation
16 process, there are any plans to open up housing for
17 rental or if that's going to be kept vacant.

18 MR. SULLIVAN: That would be up to the
19 Treasure Island Development Authority. But we would --
20 the objective of the Navy's cleanup is to make the area
21 suitable for residential use. So, if there's a desire
22 to do that, you know, we would work with all parties.

23 Okay. Well, thank you very much for coming.

24 I also want to note that we do have
25 Restoration Advisory Board meetings, which is an

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1 ongoing community forum. We have those meetings
2 every second month. We just had a meeting in October.
3 We'll have our next RAB meeting on December 20.

4 At our December meeting, we also have a
5 little holiday social in the hour before the meeting.
6 Our RAB meetings start at 7 p.m. We'll have a little
7 holiday social before 7 p.m.

8 We publish the meeting dates in virtually
9 all of our information sites we send out.

10 We would hope to see you -- see more
11 resident participation at our six RAB meetings that we
12 have each month.

13 And Marc?
14 MR. McDONALD: When does this begin?
15 MR. SULLIVAN: The work?
16 MR. McDONALD: When would the actual action
17 begin?
18 MR. SULLIVAN: Right now, as laid out on one
19 of the posters there, we would expect to start work at
20 the end of January, beginning of February. But all of
21 that is based on the sequence of events, starting with
22 this meeting here and getting all of the documents
23 reviewed and ready. Based on that timeline, the work
24 would start at the end of January, the very beginnings
25 of work.

59

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1 Well, thank you very much.
2 We'll still be here for one-on-one
3 discussion.
4 We look forward to seeing you at future
5 forums.
6 We will have a meeting on November 29.
7 We'll be sending out postcards. We hope to see you
8 there.
9 Thank you very much.
10 (Off the record at 8:20 p.m.)

11 ///

12 ///

13 ///

14 PRIVATE COMMENTS MADE TO THE REPORTER

15 MS. LACY: Paoli Lacy.

16 I would like to -- I don't know if it's,
17 like, vote or whatever, but I would like to say that
18 I am strongly in favor of the four-foot excavation,

19 actually, under both the hardtop and the not -- the
20 completest (sic) version.

21 Thank you.

22 (Off the record.)

23 ///

24 MS. SMITH: I would like it to be on the
25 record that we are both extremely supportive of

60

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1 trees.

2 MR. MARK: Bodhi Mark.

3 As a -- what do you call that? -- visually
4 beneficial and as a way to cut down on wind and
5 improve --

6 MS. SMITH: The wind conditions.

7 MR. MARK: You can do that between the two
8 of us.

9 And he wanted me to direct this question
10 to you, so it would be on the record about the removal
11 action levels.

12 I noticed that, for the lead removal action
13 level, it was based on the EPA Region IX residential
14 risk-based PRG in soil and, for these other ones,
15 like the PCBs, PAHs and dioxin, it's based on different
16 criterion for each one. And PCBs is site specific,
17 and PAHs, the equivalent concentration in soil -- I
18 don't know what that means. They're based on different
19 guidelines.

20 I'm just wondering how that was decided and
21 how that relates to the most stringent environmental
22 guidelines, you know, that are here in the state, as
23 far as the health code goes.

24 (Whereupon, the record was closed at

25
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8: 33 p. m.)

61

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STATE OF CALIFORNIA) SS.

I do hereby certify that the hearing was held at the time and place therein stated; that the statements made were reported by me, a certified shorthand reporter and disinterested person, and were, under my supervision, thereafter transcribed into typewriting.

And I further certify that I am not of counsel or attorney for either or any of the participants in said hearing nor in any way personally interested or involved in the matters therein discussed.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office this 6th day of November, 2006.

VALERIE E. JENSEN
Certified Shorthand Reporter

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JAN BROWN & ASSOCIATES (800) 522-7096

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|---|---|--|-------------------------|----------|---------------|---------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| LAVINA DE SILVA Affiliation: House of Girls Clubs SF | Street: 4015 F 13th E City, State and Zip: Treasure Island | ✓ | | | | |
| Sydson Affiliation: | Street: 301 C Manilla Ct City, State and Zip: | | | X | | |
| MARK Cannon Affiliation: Island | Street: 1232 F Northpoint City, State and Zip: SF, CA 94130 | X | | | | website |
| Scott Isachsen Affiliation: Island | Street: 1224 B Bayside City, State and Zip: SF CA 94130 | | | | X | |
| Sophia Wann Affiliation: Resident / Work for DISCO | Street: 1219 E MARINER Dr City, State and Zip: SF 94130 | | | | | |
| Margaret Reynolds Affiliation: Resident | Street: 1431 Halibut Ct. #C City, State and Zip: S.F. Ca. 94130 | | | | | Letter |
| MICHELLE SCHMIDT Affiliation: Resident | Street: 1431 HALIBUT CT City, State and Zip: SF CA 94130 | | | | | |
| HENRY MANLULU Affiliation: Resident | Street: 1309-B GATEVIEW City, State and Zip: TREASURE ISLAND, SF 94130 | | | | | LETTER |
| MARISOL Affiliation: Resident | Street: 1118A HUTCHINS City, State and Zip: | | | | X | |

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|---|--|--|-------------------------|----------|---------------|---------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| David L. Leta Affiliation | Street 1237A Woodpoint City, State and Zip SF CA 94130 | | | | | ltr |
| Becky Richardson Affiliation ! | Street 1225 D. NORTHPOINT DR City, State and Zip SF CA 94130 | | | | | |
| Mr. Guy Lu Affiliation Eirase@pchome.com.cn | Street 1211 - C Bayside Dr. City, State and Zip SF CA 94130 | | | | | |
| Aniel Lo Affiliation freestate1@yahoo.com | Street 1211 - C Bayside Dr. City, State and Zip SF CA 94130 | | | | | |
| BUCK BROWN Affiliation CCYO | Street 810 AVENUE D BLDG 2 City, State and Zip TREASURE ISLAND CA | | | | | |
| MAZIE W. DONALD Affiliation IIDA | Street City, State and Zip | | | | | |
| Daisy Ricafort Affiliation | Street 1135 H Mason CT City, State and Zip SF CA 94130 | | | | | |
| Marcos McManus Affiliation | Street 1135 - H Mason CT City, State and Zip SF CA 94130 | | | | | |
| Bob Franklin Affiliation | Street 1218C Gateview CRT City, State and Zip SF CA 94130 | | | | | |

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|--|--|--|-------------------------|----------|---------------|-----------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| Tomme Jean Dornel Affiliation Tetra Tech EMI | Street 135 Main St. Ste 1800 City, State and Zip San Francisco, CA 94105 | | | | | |
| David Rist Affiliation Dept Toxic Substances Control | Street 100 Heinz Ave. Suite 200 City, State and Zip Berkeley, CA 94710 | | | | | |
| CRIS WILLIAMS Affiliation TETRA TECH EMI | Street 135 MAIN ST. SUITE 1800 City, State and Zip SAN FRANCISCO CA 94105 | | | | | |
| Peter Bourgeois Affiliation Shaw E:I | Street 4005 Port Chicago Hwy City, State and Zip Concord CA 94520 | | | | | |
| James Whitcomb Affiliation Navy | Street Hazard Rd City, State and Zip San Diego CA | | | | | |
| Anita Larson Affiliation Tetra Tech | Street 950-17th St #2200 City, State and Zip Denver, CO 80202 | | | | | ✓ |
| Charles Perry Affiliation Navy | Street 1455 Frazee Rd Suite 900 City, State and Zip San Diego, CA 92108 | | | | | |
| S E. Smith Affiliation Resident | Street Muir Drive City, State and Zip SF CA 94130 | ✓ | | | | |
| Raul & Erica Penza Affiliation Resident | Street 1305B Gateview Ave City, State and Zip SF CA 94130 | | | | | Letter from Mon mgmt. |

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|---|---|--|-------------------------|----------|---------------|---------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| Ramonakhalbin Affiliation | Street 1214C GATEVIEW CT City, State and Zip SF, CA 94130 | X | | | | |
| Melanie Wilkinson Affiliation | Street 1214 WOODPOINT C City, State and Zip SF, CA, 94130 | | | | | ✓ |
| Melanie Wilkinson Affiliation Tenant | Street 301 C Macalla Ct. City, State and Zip | | | | | letter |
| Paoli Lay Affiliation tenant | Street 1204 D Mariner City, State and Zip SF CA 94130 | | | X | | letter |
| LaShay Thomas Affiliation Catholic Charities | Street 810 Avenue D City, State and Zip S F. CA 94103 | | | | | job |
| Katechria Harris Affiliation Catholic Charities | Street 810 Avenue D City, State and Zip S F. CA 94103 | | | | | job |
| PyRON BONSALL Affiliation Tenant | Street 1309 B Gateview Ave City, State and Zip SF CA 94130 | X | | | | |
| HANS HUERTO Affiliation Tenant | Street 1309 B Gateview Ave City, State and Zip SF CA 94130 | Y | | | | |
| JGG Affiliation TENANT | Street 1437-A CYPRESS CRT City, State and Zip SF CA 94130 | ✓ | | | | |

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|---|--|--|-------------------------|----------|---------------|---------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| Sean Milton Affiliation Resident | Street 11182 Hutchins ct City, State and Zip | X | | | | |
| Cooper Sciacca Affiliation Resident | Street 1402A Sturgeon St City, State and Zip | X | | | | |
| FAYUAE WATERS Affiliation Resident | Street 1211 BAYSIDE DRIVE, WTT City, State and Zip S.F., CA 94130 | X | | | | |
| MJ Parker Affiliation Resident | Street 1436 Chunook City, State and Zip SF 94130 | X | | | | |
| The Malloys Affiliation Resident | Street 1431 Halibur City, State and Zip SF 94130 | | | | | |
| Kelela Moberg Affiliation | Street 1227-A N Point Dr City, State and Zip | X | | | | |
| Suzanne Alfaro Affiliation | Street 1211 A Bayside City, State and Zip | | | | | |
| Joseph Martin Affiliation | Street 1224-A Bayside Dr City, State and Zip | | | | | |
| Nikola Zagorac Affiliation | Street 328 YERBA BUENA RD #C City, State and Zip | X | | | | |

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|---|--|--|-------------------------|----------|---------------|------------------------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| Name: <i>John Harbo</i> Affiliation: <i>Resident</i> | Street: <i>1205-C Bayside</i> City, State and Zip: <i>SF.</i> | ✓ | | | ✓ | |
| Name: <i>BILL BUCKER</i> Affiliation: <i>RESIDENT</i> | Street: <i>1205-C BAYSIDE</i> City, State and Zip: <i>SF</i> | ✓ | | | ✓ | |
| Name: <i>Bohki Mark</i> Affiliation: <i>Resident</i> | Street: <i>1202 F Marinier</i> City, State and Zip: <i>SF</i> | | | | | |
| Name: <i>MARK KRAMER</i> Affiliation: <i>RESIDENT</i> | Street: <i>669 YERBA BUENA RD</i> City, State and Zip: <i>SF 94130</i> | | | | | |
| Name: <i>Kyrene McDonald</i> Affiliation: <i>Res.</i> | Street: <i>1133 A Mason Ct</i> City, State and Zip: <i>SF 94130</i> | ✓ | | | | |
| Name: <i>Emily S Rapaport</i> Affiliation: <i>Resident + Chair SFICA</i> | Street: <i>1109-C Keppeler Ct</i> City, State and Zip: <i>S.F. CA 94130</i> | ✓ | | | ✓ | <i>ERAPAPORT@AOL.com</i> |
| Name: <i>Suzanne Foster</i> Affiliation: <i>Resident</i> | Street: <i>1100 A Halyburton 94130</i> City, State and Zip: <i>astanarb@comcast.net</i> | ✓ | | | ✓ | <i>Please email presentation</i> |
| Name: <i>Jeremy Schwisow</i> Affiliation: | Street: <i>Northpoint Dr.</i> City, State and Zip: <i>San Francisco, CA 94130</i> | | | | | |
| Name: <i>Adita Butler</i> Affiliation: <i>Resident</i> | Street: <i>1201A Bayside Drive</i> City, State and Zip: <i>SF, CA 94130</i> | | | | | <i>Mail + Email from TI office</i> |

+ 1 gal who did not want to sign in but did receive the Summit letter

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|---|--|--|-------------------------|----------|---------------|---------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| Name: <i>Wm Roth</i> Affiliation: <i>resident</i> | Street: <i>Sturgeon</i> City, State and Zip: <i>S.F. CA 94130</i> | | | ✓ | | |
| Name: <i>Procarre</i> Affiliation: <i>Norman</i> | Street: <i>13513 GARWOOD</i> City, State and Zip: | | | | | |
| Name: <i>Sherry Williams</i> Affiliation: <i>TIHDI</i> | Street: <i>410 Palm Ave Bldg. 1</i> City, State and Zip: <i>94130</i> | | | ✓ | | |
| Name: <i>Liz Hawkes</i> Affiliation: | Street: <i>1219 Mariner</i> City, State and Zip: | ✓ | | ✓ | | |
| Name: <i>Michelle Martinez</i> Affiliation: | Street: <i>1224-A BAYSIDE DR.</i> City, State and Zip: | ✓ | | | | |
| Name: <i>Susan DeVic</i> Affiliation: | Street: City, State and Zip: | | | | | <i>email</i> |
| Name: <i>Claudia Franssen</i> Affiliation: <i>Resident</i> | Street: <i>1213 A Bayside DR</i> City, State and Zip: | ✓ | | | | |
| Name: Affiliation: | Street: City, State and Zip: | | | | | |
| Name: Affiliation: | Street: City, State and Zip: | | | | | |

Sign-In Sheet – Treasure Island Public Meeting – October 24, 2006

| Name | Address | How Did you Hear About this Meeting? (✓) | | | | |
|-------------|--|--|-------------------------|----------|---------------|---------------------|
| | | Fact Sheet | Notice in the newspaper | Postcard | Word of Mouth | Other (Please list) |
| Jon Brown | Street: 1421 Habitat Ct City, State and Zip: SF, CA 94134 | | | | | Mailbox |
| Affiliation | Street | | | | | |
| Affiliation | City, State and Zip | | | | | |
| Affiliation | Street | | | | | |
| Affiliation | City, State and Zip | | | | | |
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| Affiliation | Street | | | | | |
| Affiliation | City, State and Zip | | | | | |

Fact Sheet, November 2006



The Navy's Preferred Cleanup Plan for Portions of the Treasure Island Housing Area

November 2006

www.bracpmo.navy.mil/bracbases/california/treasure_island

This fact sheet summarizes the Preferred Cleanup Alternative for the contaminated soil and debris areas located within the Treasure Island (TI) Housing Area.

After carefully considering public comments, activities needed to protect human health, and project goals and objectives for the TI Housing Area, the Navy proposes excavation and soil removal down to 4 feet, except under hardscape (e.g. driveways).

This preferred remedy would excavate and dispose of solid waste debris and contaminated soil from four known locations within the green-fenced areas in the Housing Area (see Figure 1). By removing these solid waste materials and soil, potential exposure to materials such as dioxins, lead, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and methane would be eliminated for current and future residents and utility workers in these areas.

PREFERRED CLEANUP ALTERNATIVE

The total acreage of the contaminated soil and debris areas that will be addressed by the Preferred Cleanup Alternative is 6.3 acres. The amount of time anticipated for the field work is 8 months, beginning in late January 2007, and includes time needed to restore current contours and landscaping. As described above, soil excavation will occur in all identified backyards and common areas of the contaminated soil and debris areas, except areas covered by hardscape (driveways).

An **information meeting** will be held on **Wednesday, November 29, 2006** to further discuss the Preferred Cleanup Alternative.

Time: 6:00 pm to 8:30 pm

Place: Casa de la Vista
Building 271
Avenue of the Palms
Treasure Island

Agenda for the meeting:

- 6:00 pm to 7:00 pm – Poster Session
- 7:00 pm to 7:30 pm – Presentation
- 7:30 pm to 8:30 pm – Question & Answer Session

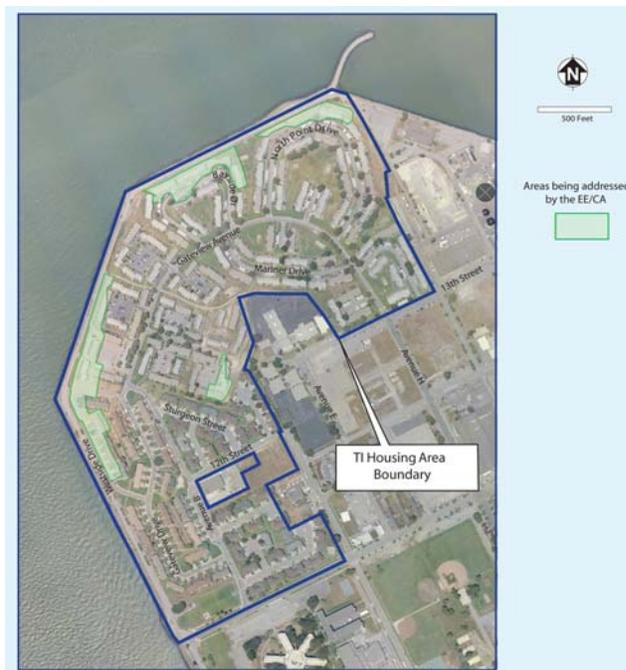


Figure 1: Aerial Photo of TI Housing Area showing excavation areas outlined and shaded in green.

Representatives of the Navy and the John Stewart Company will be in close contact with residents to ensure potentially impacted residents are identified and their needs addressed. Residents will be kept informed throughout the field activities and notified prior to work beginning in different areas.

Excavated materials will be transported off the island for disposal in an approved landfill. Air monitoring and dust suppression activities will occur during all excavation activities. Excavation will occur to a depth of four feet and will extend laterally until soil samples show the contaminated materials have been removed. Excavated areas will be backfilled with clean soil and graded to re-establish the existing contours and elevations, to the extent practicable.

PUBLIC MEETING OVERVIEW

A public meeting was held on October 24, 2006 to solicit community comments and input to the cleanup alternative selection. Five possible cleanup alternatives were evaluated as part of the Engineering Evaluation/Cost Analysis (EE/CA) process for addressing solid waste material and burned debris that were routinely buried at the site. Debris burial occurred before the TI Housing Area was built and environmental laws governing waste disposal were enacted.

At this meeting, the alternatives were presented to meeting attendees through both posters and a presentation, and a question and answer period clarified the process, alternatives, and potential resident impacts. Meeting highlights are summarized below:

- A total of 50 people came to the public meeting to review the posters and ask questions of the Navy and Navy contractor representatives. The Navy is working with the John Stewart Company to identify those residents who will be impacted by excavation activities.
- Between 20 and 25 people stayed to listen to the presentation given on the Cleanup Alternatives and to provide comments for the record.
- Most of the comments and questions were about the anticipated duration of the field work (approximately 8 months from start to finish), how the areas to be cleaned up were determined (through extensive environmental sampling), and how the Housing residents will be impacted during work activities (noise, truck traffic, some dust).

UPCOMING COMMUNITY INVOLVEMENT ACTIVITIES

November 29, 2006: Information meeting to discuss the Preferred Cleanup Alternative and to answer resident questions about upcoming work activities.

January 2007: Work begins in TI Housing Areas for excavating soil and waste materials. Look for notifications about parking restrictions in the weeks before field work begins.

August 2007: Anticipated completion of excavation activities.

HOW TO GET MORE INFORMATION?

There are several ways to get more information. You may contact any of the people on this contact list:

| Name/Title | Organization | Phone/Fax | Address | E-mail |
|--|---|---|---|----------------------------|
| James Sullivan BRAC* Environmental Coordinator | Navy BRAC Program Management Office West | (619) 532-0966 (415) 743-4704 Fax: (619) 532- 0983 | 1455 Frazee Road Suite 900 San Diego, CA 92108-4310 | james.b.sullivan2@navy.mil |
| Charles Perry Lead Remedial Project Manager | Navy BRAC Program Management Office West | (619) 532-0911 Fax: (619) 532- 0983 | 1455 Frazee Road Suite 900 San Diego, CA 92108-4310 | charles.L.perry@navy.mil |
| Jill Votaw Public Affairs Officer | Navy BRAC Program Management Office West | (619) 532-0941 Fax: (619) 532- 0983 | 1455 Frazee Road Suite 900 San Diego, CA 92108-4310 | jill.votaw@navy.mil |
| Dan Murphy Supervisor, OMF | Department of Toxic Substances Control | (510) 540-3772 Fax: (510) 849- 5285 | 700 Heinz Ave. Berkeley, CA 94710 | dmurphy1@dtsc.ca.gov |
| Henry Wong Project Manager | Department of Toxic Substances Control | (510) 540-3770 Fax: (510) 849- 5285 | 700 Heinz Ave. Berkeley, CA 94710 | hwong@dtsc.ca.gov |
| Richard Perry Public Participation Specialist | Department of Toxic Substances Control | (510) 540-3910 Fax: (510) 540- 3927 | 700 Heinz Ave. Berkeley, CA 94710 | rperry@dtsc.ca.gov |
| Agnes Farres Project Manager | Regional Water Quality Control Board | (510) 662-2401 | 1515 Clay Street Suite 1400 Oakland, CA 94612 | afarres@waterboards.ca.gov |
| Christine Katin Remedial Project Manager | U.S. Environmental Protection Agency | (415) 972-3112 Fax: (415) 947- 3520 | 75 Hawthorne Street 8 th Floor San Francisco, CA 94105 | katin.christine@epa.gov |

*BRAC is also known as Base Realignment and Closure.

Attend the Navy's Restoration Advisory Board (RAB) Meetings, held the third Tuesday of every other month at the Casa de la Vista on TI. Updates on basewide environmental investigations and activities are presented at the meetings. The next RAB meeting is currently scheduled for December 19, 2006.

Visit the Navy's web site, which contains historical and current information, including information on becoming a RAB member. It can be viewed at:

www.bracpmo.navy.mil/bracbases/california/treasure_island.

In addition, the following 2 local information repositories have been established for community access to NAVSTA TI Environmental Cleanup Program documents:

Navy BRAC Caretaker Support Office
410 Palm Avenue, Building 1, Room 161
Treasure Island, San Francisco, CA 94130
(415) 743-4704

AND

San Francisco Public Library
Government Publications Section
100 Larkin Street, San Francisco, CA 94102
(415) 557-4400

NAVSTA TI Mailing Coupon

If you would like to be added to the TI/YBI mailing list and receive copies of future newsletters and fact sheets, please fill out the coupon below and mail it to:

James Sullivan
Navy BRAC Program Management Office West
410 Palm Avenue
Building 1, Room 161
Treasure Island, San Francisco, CA 94130-1806

Name _____

Address _____

City _____ State _____ Zip _____

E-mail Address _____

ADD MY NAME TO THE MAILING LIST

DELETE MY NAME FROM THE MAILING LIST



James Sullivan
Navy BRAC Program Management Office West
410 Palm Avenue
Building 1, Room 161
Treasure Island, San Francisco, CA 94130-1806

AM/IRAP Public Notice Text

NOTICE OF PUBLIC COMMENT PERIOD AND PUBLIC MEETING

Draft Action Memorandum / Interim Remedial Action Plan
Treasure Island Housing Area,
Site 12,
Former Naval Station
Treasure Island



The U.S. Navy and the Department of Toxic Substances Control (DTSC) invite the public to review and comment on the draft Action Memorandum / Interim Remedial Action Plan (AM/IRAP) for the Treasure Island Housing Area, Site 12, at the former Naval Station Treasure Island. The AM/IRAP proposes cleanup of contaminated soil and debris by excavation and off-site disposal at permitted landfills.

DTSC also invites the public to review and comment on the draft Negative Declaration pursuant to the California Environmental Quality Act (CEQA). The draft Negative Declaration finds that the implementation of the cleanup activities would have no impact to public health and the environment.

34-Day Public Comment Period

December 27, 2006 to January 29, 2007

Please send AM/IRAP comments to
Mr. James B. Sullivan
Navy BRAC PMO West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310
Fax (619) 532-0983
Phone (619) 532-0966 or e-mail
mailto:james.b.sullivan2@navy.mil

Please send Negative Declaration comments to Mr.
Henry Wong, Remedial Project Manager DTSC
700 Heinz Avenue, Berkeley, CA 94710
or email mailto:hwong@dtsc.ca.gov

Comments Due (postmarked) January 29, 2007

DTSC will hold a Public Meeting

Wednesday, January 17, 2007 6:30 p.m.
Casa de la Vista
Building 271, Avenue of the Palms
Treasure Island, CA

DTSC will accept verbal and written comments on the AM/IRAP and Negative Declaration at the meeting.

The Navy and DTSC will carefully consider all comments before making a final decision. The Navy and DTSC will respond to all comments in a Responsiveness Summary section of the final AM/IRAP Amendment.

Where can I find more information?

Copies of the draft AM/IRAP and draft Negative Declaration are available for public review at the Information Repositories listed below.

San Francisco Public Library
100 Larkin Street, 5th Floor

Government Publications Section
San Francisco, California
(415) 557-4400

Navy Caretaker Support Office
410 Avenue of the Palms
Building 1, Room 161
Treasure Island, California
(415) 743-4704

DTSC File Room
700 Heinz Avenue
Berkeley, California
(510) 540-3800

The draft AM/IRAP and draft Negative Declaration are also available at:

http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=38370044&cmd=community_involvement

If you would like to discuss this project with a DTSC representative, please contact Mr. Henry Wong, DTSC Remedial Project Manager, at (510) 540-3770 or hwong@dtsc.ca.gov. Public participation and reasonable accommodations, please contact Mr. Richard Perry, DTSC Public Participation Specialist, at (510) 540-3910, toll-free at (866) 495-5651, or rperry@dtsc.ca.gov.

Media inquiries contact: Ms. Angela Blanchette, DTSC Public Information Officer,
(510) 540-3732 or mailto:ablanche@dtsc.ca.gov

Notice to the Hearing Impaired

You can obtain additional information by using the California State Relay Service at 1-866-877-5378 (TDD). Ask them to contact Mr. Richard Perry (916) 255-6683 regarding the Naval Station Treasure Island.

Si desea mas informacion en Espanol, comuniquese con Jesus Cruz, Especialista en Participacion Publica al numero 1-866-495-5651.

4899532.MASTER

**ATTACHMENT 4:
DON ADMINISTRATIVE RECORD INDEX,
INSTALLATION RESTORATION SITE 12**

TREASURE ISLAND NAVSTA

DRAFT ADMINISTRATIVE RECORD FILE INDEX - UPDATE (SORTED BY RECORD DATE/RECORD NUMBER)

INDEX OF RECORDS PERTAINING TO SITE IR SITE 12

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | Record Type | Record Date | Author | Recipient Affil. | Subject | Classification | Keywords | Sites | Location FRC Access. No. FRC/SWDIV Box No. FRC Warehouse Loc. CD No. |
|--------------------|------------------|------------|---------------|-----------------|-------------|--------|------------------|--|----------------|-------------|-------|--|
| Contr./Guid. No. | CTO No. | EPA Cat. # | Recipient | Approx. # Pages | | | | | | | | |
| N60028 / 000262 | | 11-29-1999 | PRC | | | | | PRELIMINARY RISK ASSESSMENT (PRA) FIELD WORK PLAN VOLUME 1 (FINAL) | ADMIN RECORD | PRA WP | 012 | FRC - LAGUNA NIGEL 181-03-0181 6 OF 27 41106473 |
| RPT | | NONE | | | | | | | | | | |
| NONE | | 00.0 | | | | | | | | | | |
| 00000 | | | | | | | | | | | | |
| N60028 / 000270 | | 11-29-1999 | PRC | | | | | FINAL FIELD WORK PLAN SITE INSPECTION AND PRELIMINARY RISK ASSESSMENT (PRA) | ADMIN RECORD | PRA WP | 012 | FRC - LAGUNA NIGEL 181-03-0181 7 OF 27 41106473 |
| RPT | | NONE | | | | | | | | | | |
| NONE | | 00.0 | | | | | | | | | | |
| 00000 | | | | | | | | | | | | |
| N60028 / 000091 | | 11-29-1999 | DTSC | | | | | COMMENTS ON DRAFT PRELIMINARY RISK ASSESSMENT (PRA) OF 24 JANUARY 1992 FOR SITE 12 | ADMIN RECORD | CMTS PRA | 012 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |
| CMNT | | NONE | NAVY | | | | | | | | | |
| NONE | | 00.0 | | | | | | | | | | |
| 00000 | | | | | | | | | | | | |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | Record Type | Record Date | Author | Recipient Affil. | Subject | Classification | Keywords | Sites | Location FRC Access. No. FRC/SWDIV Box No. FRC Warehouse Loc. CD No. |
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| Contr./Guid. No. | CTO No. | EPA Cat. # | Recipient | Approx. # Pages | | | | | | | | |
| N60028 / 000021 | | 11-29-1999 09-15-1992 | PRC | | | | | FINAL PRELIMINARY RISK ASSESSMENT (PRA) (SITE 12) | ADMIN RECORD | FEASBLTY PRA STUDY | 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| RPT NONE 00000 | | NONE 00.0 | | | | | | | | | | |
| N60028 / 000123 | | 11-29-1999 09-16-1992 | NAVY | | | | | SUBMISSION OF FINAL PRELIMINARY RISK ASSESSMENT (PRA) REPORT (SITE 12) | ADMIN RECORD | FINAL FS PRA RI | 012 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |
| LTR NONE 00000 | | NONE 00.0 | BAAQMD | | | | | | | | | |
| N60028 / 000161 | | 11-29-1999 10-27-1992 | NAVY | | | | | NAVY RESPONSE TO DTSC COMMENTS ON DRAFT PRELIMINARY RISK ASSESSMENT (PRA) REPORT SITE 12, DATED 24 JANUARY 1992 | ADMIN RECORD | PRA | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 |
| RESP NONE 00000 | | NONE 00.0 | DTSC | | | | | | | | | |
| N60028 / 000185 | | 11-29-1999 09-30-1993 | DTSC | | | | | COMMENTS ON FINAL PRELIMINARY RISK ASSESSMENT (PRA) FOR SITE 12 | ADMIN RECORD | PRA | 012 | FRC - LAGUNA NIGEL 181-03-0181 5 OF 27 41106473 |
| CMNT NONE 00000 | | NONE 00.0 | | | | | | | | | | |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | | | | | Location |
|-----------------------|---------------------------------|------------------|---|-----------------|----------------|-------|--|--|
| Record Type | Record Date | Author | | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | | FRC Warehouse Loc. |
| | | | | | | | | CD No. |
| N60028 / 000332 | 11-29-1999 09-26-1994 | NAVY | SUBMISSION OF DRAFT TECHNICAL MEMORANDUM (TM), DRAFT PHASE IIB REMEDIAL INVESTIGATION (RI) WORK PLAN ADDENDUM FOR SITE 12 - OLD BUNKER AREA | INFO REPOSITORY | RI TM WP | 012 | | FRC - LAGUNA NIGEL 181-03-0181 8 OF 27 41106473 |
| LTR NONE 00000 | NONE 00.0 | | | | | | | |
| N60028 / 000333 | 11-29-1999 09-26-1994 | PRC | DRAFT TECHNICAL MEMORANDUM (TM), DRAFT PHASE IIB REMEDIAL INVESTIGATION (RI) WORK PLAN ADDENDUM FOR SITE 12 - OLD BUNKER AREA | INFO REPOSITORY | RI TM WP | 012 | | FRC - LAGUNA NIGEL 181-03-0181 8 OF 27 41106473 |
| RPT NONE 00000 | NONE 00.0 | | | | | | | |
| N60028 / 000335 | 11-29-1999 10-06-1994 | USEPA | AGENCY COMMENTS ON DRAFT TECHNICAL MEMORANDUM (TM) DRAFT PHASE IIB REMEDIAL INVESTIGATION (RI) WORK PLAN ADDENDUM FOR SITE 12 | ADMIN RECORD | RI TM WP | 012 | | FRC - LAGUNA NIGEL 181-03-0181 8 OF 27 41106473 |
| CMNT NONE 00000 | NONE 00.0 | | | | | | | |
| N60028 / 000342 | 11-29-1999 11-04-1994 | DTSC | AGENCY COMMENTS ON DRAFT TECHNICAL MEMORANDUM (TM): PHASE IIB REMEDIAL INVESTIGATION (RI) WORK PLAN ADDENDUM, SITE 12, OLD BUNKER AREA | ADMIN RECORD | RI TM WP | 012 | | FRC - LAGUNA NIGEL 181-03-0181 8 OF 27 41106473 |
| CMNT NONE 00000 | NONE 00.0 | | | | | | | |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | | | | | Location |
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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | | FRC Warehouse Loc. |
| | | | | | | | | CD No. |
| N60028 / 000561 | 11-29-1999 | PRC | TECHNICAL MEMORANDUM (TM): PHASE IIB | ADMIN RECORD | RI | 012 | | FRC - LAGUNA |
| | 08-19-1996 | TOBIAS, SHARON | REMEDIAL INVESTIGATION (RI) ADDITIONAL | | TM | 017 | | NIGEL |
| RPT | 00096 | L | CHARACTERIZATION AT SITES 12 AND 17 | | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | NAVY | | | | | | 13 OF 27 |
| 00022 | | GALANG, ERNESTO | | | | | | 41106473 |
| N60028 / 000560 | 11-29-1999 | NAVY | SUBMISSION OF TECHNICAL | ADMIN RECORD | RI | 012 | | FRC - LAGUNA |
| | 08-20-1996 | GALANG, ERNESTO | MEMORANDUM (TM): PHASE IIB REMEDIAL | | TM | 017 | | NIGEL |
| LTR | 00096 | DTSC | INVESTIGATION (RI) ADDITIONAL | | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | KAO, CHEIN PING | CHARACTERIZATION AT SITES 12 AND 17 - | | | | | 13 OF 27 |
| 00002 | | | 19 AUGUST 1996 | | | | | 41106473 |
| N60028 / 000565 | 11-29-1999 | USEPA | COMMENTS ON THE TECHNICAL | ADMIN RECORD | RI | 012 | | FRC - LAGUNA |
| | 08-28-1996 | SIMONS, RACHEL | MEMORANDUM (TM): PHASE IIB REMEDIAL | | TM | 017 | | NIGEL |
| LTR | NONE | D | INVESTIGATION (RI) ADDITIONAL | | | | | 181-03-0181 |
| NONE | 00.0 | NAVY | CHARACTERIZATION AT SITES 12 AND 17 - | | | | | 14 OF 27 |
| 00002 | | GALANG, ERNESTO | 19 AUGUST 1996 | | | | | 41106473 |
| N60028 / 000569 | 11-29-1999 | RAB | COMMENTS ON (1) PHASE IIB REMEDIAL | ADMIN RECORD | FSP | 012 | | FRC - LAGUNA |
| | 09-10-1996 | HEHN, PAUL V. | INVESTIGATION (RI) ADDITIONAL | | RI | 017 | | NIGEL |
| CMNT | NONE | NAVY | CHARACTERIZATION AT SITES 12 AND 17, | | | | | 181-03-0181 |
| NONE | 00.0 | SULLIVAN, JAMES | AND (2) ECOTOXICOLOGICAL TESTING | | | | | 14 OF 27 |
| 00008 | | | SAMPLING AND ANALYSIS PLAN | | | | | 41106473 |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | | | | | Location |
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| Record Type | Record Date | Author | | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | | FRC Warehouse Loc. |
| | | | | | | | | CD No. |
| N60028 / 000572 | 11-29-1999 | NAVY | RESPONSE TO COMMENTS ON THE | ADMIN RECORD | RI | 012 | | FRC - LAGUNA |
| | 09-17-1996 | GALANG, | TECHNICAL MEMORANDUM (TM): PHASE IIB | | TM | 017 | | NIGEL |
| RESP | NONE | ERNESTO | REMEDIAL INVESTIGATION (RI) ADDITIONAL | | | | | 181-03-0181 |
| NONE | 00.0 | DTSC | CHARACTERIZATION AT SITES 12 AND 17 | | | | | 14 OF 27 |
| 00004 | | KAO, CHEIN PING | | | | | | 41106473 |
| N60028 / 000595 | 11-29-1999 | PRC | ADDENDUM TO ECOTOXICOLOGICAL | ADMIN RECORD | SAP | 005 | | FRC - LAGUNA |
| | 11-18-1996 | TOBIAS, SHARON | TESTING SAMPLING AND ANALYSIS PLAN | | | 007 | | NIGEL |
| LTR | 00199 | L | FOR DEVELOPMENT OF PETROLEUM | | | 008 | | 181-03-0181 |
| N62474-88-D-5086 | 00.0 | NAVY | CLEANUP GOALS | | | 009 | | 15 OF 27 |
| 00016 | | GALANG, | | | | 010 | | 41106473 |
| | | ERNESTO | | | | 011 | | |
| | | | | | | 012 | | |
| | | | | | | 017 | | |
| | | | | | | 021 | | |
| | | | | | | 024 | | |
| N60028 / 000679 | 11-29-1999 | NAVY | SYNOPSIS AND SUBMISSION OF DRAFT | INFO | RI | 012 | | FRC - LAGUNA |
| | 04-15-1997 | GALANG, | REMEDIAL INVESTIGATION (RI) REPORT, | REPOSITORY | | 017 | | NIGEL |
| LTR | 00096 | ERNESTO | ADDENDUM NO. 2, ADDITIONAL | | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | CHARACTERIZATION AT SITES 12 AND 17 - | | | | | 17 OF 27 |
| 00003 | | CASSA, MARY | 15 APRIL 1997 | | | | | 41106473 |
| | | ROSE | | | | | | |
| N60028 / 000680 | 11-29-1999 | PRC | DRAFT REMEDIAL INVESTIGATION (RI) | INFO | RI | 012 | | FRC - LAGUNA |
| | 04-15-1997 | TOBIAS, SHARON | REPORT, ADDENDUM NO. 2, ADDITIONAL | REPOSITORY | | 017 | | NIGEL |
| RPT | 00096 | L | CHARACTERIZATION AT SITES 12 AND 17 | | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | NAVY | | | | | | 17 OF 27 |
| 00031 | | GALANG, | | | | | | 41106473 |
| | | ERNESTO | | | | | | |

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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000681 | 11-29-1999 | NAVY | SYNOPSIS AND SUBMISSION OF DRAFT | INFO | RI | 006 | FRC - LAGUNA |
| | 04-17-1997 | GALANG, | REMEDIAL INVESTIGATION (RI) REPORT, | REPOSITORY | | 012 | NIGEL |
| LTR | 00199 | ERNESTO | ADDENDUM NO. 3, ECOTOXICOLOGICAL | | | 015 | 181-03-0181 |
| N62474-88-D-5086 | 00.0 | DTSC | TESTING FOR THE DEVELOPMENT OF | | | 022 | 17 OF 27 |
| 00003 | | CASSA, MARY | PETROLEUM SCREENING LEVELS - | | | | 41106473 |
| | | ROSE | | | | | |
| N60028 / 000682 | 11-29-1999 | PRC | DRAFT REMEDIAL INVESTIGATION (RI) | INFO | RI | 006 | FRC - LAGUNA |
| | 04-17-1997 | TOBIAS, SHARON | REPORT, ADDENDUM NO. 3, | REPOSITORY | | 012 | NIGEL |
| RPT | 00199 | L | ECOTOXICOLOGICAL TESTING FOR THE | | | 015 | 181-03-0181 |
| N62474-88-D-5086 | 00.0 | NAVY | DEVELOPMENT OF PETROLEUM | | | 022 | 17 OF 27 |
| 00091 | | GALANG, | SCREENING LEVELS | | | | 41106473 |
| | | ERNESTO | | | | | |
| N60028 / 000686 | 11-29-1999 | PRC | DRAFT REMEDIAL INVESTIGATION (RI) | INFO | RI | 005 | FRC - LAGUNA |
| | 04-25-1997 | TOBIAS, SHARON | REPORT ADDENDUM NO. 4, REVISED | REPOSITORY | | 007 | NIGEL |
| RPT | 00199 | L | REMEDIAL INVESTIGATION CONCLUSIONS | | | 009 | 181-03-0181 |
| N62474-88-D-5086 | 00.0 | NAVY | AND RECOMMENDATIONS | | | 010 | 17 OF 27 |
| 00025 | | GALANG, | | | | 011 | 41106473 |
| | | ERNESTO | | | | 012 | |
| | | | | | | 017 | |
| | | | | | | 021 | |
| | | | | | | 024 | |
| N60028 / 000694 | 11-29-1999 | USEPA | NO COMMENTS ON THE DRAFT REMEDIAL | ADMIN RECORD | RI | 012 | FRC - LAGUNA |
| | 05-13-1997 | SIMONS, RACHEL | INVESTIGATION (RI) REPORT ADDENDUM | | | 017 | NIGEL |
| CMNT | NONE | D | NO. 2, ADDITIONAL CHARACTERIZATION AT | | | | 181-03-0181 |
| NONE | 00.0 | NAVY | SITES 12 AND 17 - 15 APRIL 1997 | | | | 17 OF 27 |
| 00001 | | GALANG, | | | | | 41106473 |
| | | ERNESTO | | | | | |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | | | | | Location |
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| Record Type | Record Date | Author | | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | | FRC Warehouse Loc. |
| | | | | | | | | CD No. |
| N60028 / 000700 | 11-29-1999 | RAB | COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION (RI) REPORT, ADDENDUM 2, ADDITIONAL CHARACTERIZATION AT SITES 12 AND 17 | ADMIN RECORD | RI | 012 | | FRC - LAGUNA NIGEL |
| | 05-19-1997 | HEHN, PAUL V. | | | | 017 | | 181-03-0181 |
| CMNT | NONE | NAVY | | | | | | 18 OF 27 |
| NONE | 00.0 | SULLIVAN, JAMES | | | | | | |
| 00003 | | | | | | | | 41106473 |
| N60028 / 000703 | 11-29-1999 | RAB | COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION (RI) REPORT, ADDENDUM 2, ADDITIONAL CHARACTERIZATION AT SITES 12 AND 17 - 15 APRIL 1997 | ADMIN RECORD | RI | 012 | | FRC - LAGUNA NIGEL |
| | 05-21-1997 | HEHN, PAUL V. | | | | 017 | | 181-03-0181 |
| CMNT | NONE | NAVY | | | | | | 18 OF 27 |
| NONE | 00.0 | SULLIVAN, JAMES | | | | | | |
| 00002 | | | | | | | | 41106473 |
| N60028 / 000715 | 11-29-1999 | PRC | GROUNDWATER STATUS REPORT: SUMMARY OF GROUNDWATER MONITORING FROM NOVEMBER 1995 TO SEPTEMBER 1996 | ADMIN RECORD | GW | 006 | | FRC - LAGUNA NIGEL |
| | 05-23-1997 | TOBIAS, SHARON | | | | 009 | | 181-03-0181 |
| RPT | 00199 | L | | | | 011 | | 18 OF 27 |
| N62474-88-D-5086 | 00.0 | NAVY | | | | 012 | | |
| 00500 | | GALANG, ERNESTO | | | | 014 | | 41106473 |
| | | | | | | 015 | | |
| | | | | | | 021 | | |
| | | | | | | 024 | | |
| N60028 / 000733 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT ADDITIONAL CHARACTERIZATION WORK PLAN FOR SITE 12 - 12 AUGUST 1997 | INFO REPOSITORY | WP | 012 | | FRC - LAGUNA NIGEL |
| | 08-12-1997 | GALANG, ERNESTO | | | | | | 181-03-0181 |
| LTR | 00096 | DTSC | | | | | | 18 OF 27 |
| N62474-94-D-7609 | 00.0 | CASSA, MARY | | | | | | |
| 00002 | | ROSE | | | | | | 41106473 |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | Record Type | Record Date | Author | Recipient Affil. | Subject | Classification | Keywords | Sites | Location FRC Access. No. FRC/SWDIV Box No. FRC Warehouse Loc. CD No. |
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| Contr./Guid. No. | CTO No. | EPA Cat. # | Recipient | Approx. # Pages | | | | | | | | |
| N60028 / 000734 | | 11-29-1999 | NAVY | | | | | DRAFT ADDITIONAL CHARACTERIZATION WORK PLAN FOR SITE 12 | INFO REPOSITORY | WP | 012 | P3-C - BECHTEL NATIONAL |
| LTR | | 08-12-1997 | GALANG, ERNESTO | | | | | | | | | |
| N62474-94-D-7609 | | 00096 | DTSC | | | | | | | | | |
| 00017 | | 00.0 | CASSA, MARY ROSE | | | | | | | | | PW - 28825521 |
| N60028 / 000739 | | 11-29-1999 | DTSC | | | | | COMMENTS ON THE DRAFT ADDITIONAL CHARACTERIZATION WORK PLAN (WP) FOR SITE 12 - 12 AUGUST 1997 | ADMIN RECORD | WP | 012 | FRC - LAGUNA NIGEL |
| CMNT | | 08-28-1997 | CASSA, MARY ROSE | | | | | | | | | 181-03-0181 |
| NONE | | NONE | NAVY | | | | | | | | | 18 OF 27 |
| 00002 | | 00.0 | POWELL, RICHARD | | | | | | | | | 41106473 |
| N60028 / 000749 | | 11-29-1999 | NAVY | | | | | RESPONSE TO COMMENTS ON THE DRAFT FINAL INTERIM GROUNDWATER MONITORING PLAN - 17 APRIL 1997 | ADMIN RECORD | GW | 001 | FRC - LAGUNA NIGEL |
| RESP | | 09-02-1997 | GALANG, ERNESTO | | | | | | | | 004 | 181-03-0181 |
| N62474-88-D-5086 | | 00199 | DTSC | | | | | | | | 006 | 18 OF 27 |
| 00009 | | 00.0 | CASSA, MARY ROSE | | | | | | | | 007 | |
| | | | | | | | | | | | 009 | 41106473 |
| | | | | | | | | | | | 010 | |
| | | | | | | | | | | | 011 | |
| | | | | | | | | | | | 012 | |
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| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000750 | 11-29-1999 | PRC | FINAL INTERIM GROUNDWATER | ADMIN RECORD | GW | 001 | FRC - LAGUNA |
| | 09-02-1997 | KNAPP, RICHARD | MONITORING PLAN | | | 004 | NIGEL |
| RPT | 00199 | NAVY | | | | 006 | 181-03-0181 |
| N62474-88-D-5086 | 00.0 | GALANG, | | | | 007 | 19 OF 27 |
| 00150 | | ERNESTO | | | | 009 | |
| | | | | | | 010 | 41106473 |
| | | | | | | 011 | |
| | | | | | | 012 | |
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| | | | | | | 022 | |
| | | | | | | 024 | |
| | | | | | | 025 | |
| N60028 / 000767 | 11-29-1999 | TETRA TECH | FINAL ADDITIONAL CHARACTERIZATION | ADMIN RECORD | WP | 012 | FRC - LAGUNA |
| | 09-17-1997 | KNAPP, RICHARD | WORK PLAN (WP) FOR SITE 12 | | | | NIGEL |
| RPT | 00096 | NAVY | | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | | | | | 20 OF 27 |
| 00019 | | ERNESTO | | | | | |
| | | | | | | | 41106473 |
| N60028 / 000766 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL ADDITIONAL | ADMIN RECORD | WP | 012 | FRC - LAGUNA |
| | 09-18-1997 | GALANG, | CHARACTERIZATION WORK PLAN (WP) | | | | NIGEL |
| LTR | 00096 | ERNESTO | FOR SITE 12 - 17 SEPTEMBER 1997 | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | | | | | 20 OF 27 |
| 00002 | | CASSA, MARY | | | | | |
| | | ROSE | | | | | 41106473 |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | | | | Location |
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| Record Type | Record Date | Author | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 000861 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT FIELD | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| LTR | 07-13-1998 | GALANG, | SAMPLING PLAN (FSP) ADDENDUM AT SITE | | FSP | | NIGEL |
| N62474-94-D-7609 | 00242 | ERNESTO | 12, OLD BUNKER AREA (1) ADDITIONAL | | PETROLEUM | | 181-03-0181 |
| 00002 | 00.0 | DTSC | CHARACTERIZATION OF TOTAL | | | | 22 OF 27 |
| | | RIST, DAVID | PETROLEUM HYDROCARBONS, AND (2) AD | | | | 41106473 |
| N60028 / 000862 | 11-29-1999 | TETRA TECH | DRAFT FIELD SAMPLING PLAN (FSP) | ADMIN RECORD | FSP | 012 | FRC - LAGUNA |
| RPT | 07-13-1998 | HIBSER, PAUL | ADDENDUM AT SITE 12, OLD BUNKER AREA | | PETROLEUM | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | , ADDITIONAL CHARACTERIZATION OF | | | | 181-03-0181 |
| 00029 | 00.0 | GALANG, | TOTAL PETROLEUM HYDROCARBONS | | | | 22 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 000863 | 11-29-1999 | TETRA TECH | DRAFT FIELD SAMPLING PLAN (FSP) | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| RPT | 07-13-1998 | HIBSER, PAUL | ADDENDUM AT SITE 12, OLD BUNKER | | FSP | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | AREA, ADDITIONAL CHARACTERIZATION | | | | 181-03-0181 |
| 00017 | 00.0 | GALANG, | OF DIOXINS | | | | 22 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 000890 | 11-29-1999 | DTSC | COMMENTS ON THE DRAFT ADDITIONAL | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| CMNT | 07-27-1998 | RIST, DAVID | CHARACTERIZATION OF DIOXINS FIELD | | FSP | | NIGEL |
| NONE | NONE | NAVY | SAMPLING PLAN (FSP) ADDENDUM FOR | | | | 181-03-0181 |
| 00002 | 00.0 | GALANG, | SITE 12 - 13 JULY 1998 | | | | 22 OF 27 |
| | | ERNESTO | | | | | 41106473 |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 000891 | 11-29-1999 | RWQCB | COMMENTS ON THE DRAFT ADDITIONAL | ADMIN RECORD | FSP | 012 | FRC - LAGUNA |
| CMNT | 07-27-1998 | LELAND, DAVID F. | CHARACTERIZATION OF TOTAL | | PETROLEUM | | NIGEL |
| NONE | NONE | NAVY | PETROLEUM HYDROCARBONS AT SITE 12, | | | | 181-03-0181 |
| 00003 | 00.0 | GALANG, ERNESTO | OLD BUNKER AREA, FIELD SAMPLING PLAN (FSP) ADDENDUM - 13 JULY 1998 | | | | 22 OF 27 |
| | | | | | | | 41106473 |
| N60028 / 000892 | 11-29-1999 | TIMO | COMMENTS ON THE ADDITIONAL | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| CMNT | 07-28-1998 | WALTERS, | CHARACTERIZATION OF DIOXINS AT SITE | | FSP | | NIGEL |
| NONE | NONE | MARTHA | 12 - OLD BUNKER AREA FIELD SAMPLING | | PETROLEUM | | 181-03-0181 |
| 00007 | 00.0 | NAVY | PLAN (FSP) ADDENDUM (DRAFT) - 13 JULY | | | | 22 OF 27 |
| | | GALANG, ERNESTO | 1998, AND THE REVIEW OF A | | | | 41106473 |
| N60028 / 000900 | 11-29-1999 | TETRA TECH | FINAL FIELD SAMPLING PLAN (FSP) | ADMIN RECORD | FSP | 012 | FRC - LAGUNA |
| RPT | 08-11-1998 | HIBSER, PAUL | ADDENDUM, ADDITIONAL | | PETROLEUM | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | CHARACTERIZATION OF TOTAL | | | | 181-03-0181 |
| 00037 | 00.0 | GALANG, ERNESTO | PETROLEUM HYDROCARBONS AT SITE 12, OLD BUNKER AREA | | | | 22 OF 27 |
| | | | | | | | 41106473 |
| N60028 / 000901 | 11-29-1999 | TETRA TECH | FINAL FIELD SAMPLING PLAN (FSP) | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| RPT | 08-11-1998 | HIBSER, PAUL | ADDENDUM, ADDITIONAL | | FSP | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | CHARACTERIZATION OF DIOXINS AT SITE | | | | 181-03-0181 |
| 00024 | 00.0 | GALANG, ERNESTO | 12, OLD BUNKER AREA | | | | 22 OF 27 |
| | | | | | | | 41106473 |

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| | | | | | | | CD No. |
| N60028 / 000899 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL FIELD | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| LTR | 08-12-1998 | GALANG, | SAMPLING PLAN (FSP) ADDENDUM, SITE 12 | | FSP | | NIGEL |
| N62474-94-D-7609 | 00242 | ERNESTO | OLD BUNKER AREA (11 AUGUST 1998) FOR | | PETROLEUM | | 181-03-0181 |
| 00002 | 00.0 | DTSC | (1) ADDITIONAL CHARATERIZATION OF | | | | 22 OF 27 |
| | | RIST, DAVID | TOTAL PETROLEUM HYDROC | | | | 41106473 |
| N60028 / 000923 | 11-29-1999 | TETRA TECH | DRAFT FIELD SAMPLING PLAN (FSP) | ADMIN RECORD | FSP | 012 | FRC - LAGUNA |
| RPT | 11-09-1998 | KNAPP, RICHARD | ADDENDUM FOR THE ADDITIONAL | | LEAD | | NIGEL |
| N62474-94-D-7609 | 00150 | NAVY | CHARACTERIZATION OF LEAD IN SOIL IN | | | | 181-03-0181 |
| 00015 | 00.0 | GALANG, | THE VICINITY OF BUILDINGS 1207 AND 1209, | | | | 23 OF 27 |
| | | ERNESTO | SITE 12 OLD BUNKER AREA | | | | 41106473 |
| N60028 / 000922 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT FIELD | ADMIN RECORD | FSP | 012 | FRC - LAGUNA |
| LTR | 11-10-1998 | GALANG, | SAMPLING (FSP) ADDENDUM FOR THE | | LEAD | | NIGEL |
| N62474-94-D-7609 | 00150 | ERNESTO | ADDITIONAL CHARACTERIZATION OF LEAD | | | | 181-03-0181 |
| 00001 | 00.0 | DTSC | IN SOIL IN THE VICINITY OF BUILDINGS 1207 | | | | 23 OF 27 |
| | | RIST, DAVID | AND 1209, SITE 12 OLD | | | | 41106473 |
| N60028 / 000925 | 11-29-1999 | NAVFAC - EFA | TPH AND DIOXIN DATA INITIAL STATISTICAL | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| LTR | 11-17-1998 | WEST | SUMMARIES AND NOTES - 06 JUNE 1998, | | TPH | | NIGEL |
| NONE | NONE | GALANG, | TPH DATA ELEMENT ESITIMATED MEANS | | | | 181-03-0181 |
| 00041 | 00.0 | ERNESTO | CONCENTRATIONS - 06 AUGUST 1998 | | | | 23 OF 27 |
| | | DTSC | | | | | 41106473 |
| | | RIST, DAVID | | | | | |

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| | | | | | | | CD No. |
| N60028 / 000938 | 11-29-1999 | TETRA TECH | DRAFT SITE 12, OLD BUNKER AREA, | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| | 01-07-1999 | HIBSER, PAUL | ADDITIONAL CHARACTERIZATION DIOXIN | | TM | | NIGEL |
| RPT | 00242 | NAVY | TECHNICAL MEMORANDUM (TM) | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | | | | | 23 OF 27 |
| 00034 | | ERNESTO | | | | | 41106473 |
| N60028 / 000939 | 11-29-1999 | TETRA TECH | DRAFT SITE 12, OLD BUNKER AREA, | ADMIN RECORD | GW | 012 | FRC - LAGUNA |
| | 01-07-1999 | HIBSER, PAUL | ADDITIONAL CHARACTERIZATION TOTAL | | PETROLEUM | | NIGEL |
| RPT | 00242 | NAVY | PETROLEUM HYDROCARBONS SOIL AND | | TM | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | GROUNDWATER SAMPLING RESULTS | | | | 23 OF 27 |
| 00054 | | ERNESTO | TECHNICAL MEMORANDUM (TM) | | | | 41106473 |
| N60028 / 000937 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT SITE 12, OLD | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| | 01-12-1999 | GALANG, | BUNKER AREA, ADDITIONAL | | GW | | NIGEL |
| LTR | 00242 | ERNESTO | CHARACTERIZATION (1) DIOXIN TECHNICAL | | PETROLEUM | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | MEMORANDUM (TM), (2) TOTAL | | TM | | 23 OF 27 |
| 00001 | | RIST, DAVID | PETROLEUM HYDROCARBONS SOIL AND | | | | 41106473 |
| | | GRO | | | | | |
| N60028 / 000945 | 11-29-1999 | NAVY | DRAFT SAMPLING, ANALYSES, AND | INFO | HASP | 012 | FRC - LAGUNA |
| | 02-03-1999 | GALANG, | DELINEATION OF TOTAL PETROLEUM | REPOSITORY | PETROLEUM | | NIGEL |
| RPT | NONE | ERNESTO | HYDROCARBONS (TPH) CONTAMINATED | | TM | | 181-03-0181 |
| NONE | 00.0 | DTSC | SOIL AT SITE 12 (BUILDING UNIT 1311)(1) | | TPH | | 23 OF 27 |
| 00100 | | RIST, DAVID | TECHNICAL MEMORANDUM (TM) - 0 | | | | 41106473 |

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| | | | | | | | CD No. |
| N60028 / 000946 | 11-29-1999 | NAVY | DRAFT SAMPLING, ANALYSES, AND | INFO | HASP | 012 | FRC - LAGUNA |
| | 02-03-1999 | GALANG, | DELINEATION OF LEAD CONTAMINATED | REPOSITORY | LEAD | | NIGEL |
| RPT | NONE | ERNESTO | SOIL AT SITE 12 (BUILDING UNITS 1207 AND | | TM | | 181-03-0181 |
| NONE | 00.0 | DTSC | 1209) (1) TECHNICAL MEMORANDUM (TM) - | | | | 23 OF 27 |
| 00100 | | RIST, DAVID | 02 FEBRUARY 1999, AN | | | | 41106473 |
| N60028 / 000948 | 11-29-1999 | RWQCB | COMMENTS ON THE DRAFT ADDITIONAL | ADMIN RECORD | GW | 012 | FRC - LAGUNA |
| | 02-08-1999 | LELAND, DAVID F. | CHARACTERIZATION OF TOTAL | | TM | | NIGEL |
| CMNT | NONE | NAVY | PETROLEUM HYDROCARBONS (TPH) AT | | TPH | | 181-03-0181 |
| NONE | 00.0 | GALANG, | SITE 12, OLD BUNKER AREA, SOIL AND | | | | 23 OF 27 |
| 00002 | | ERNESTO | GROUNDWATER SAMPLING RESULTS | | | | 41106473 |
| | | | TECHNIC | | | | |
| N60028 / 000951 | 11-29-1999 | TETRA TECH | DRAFT SITE 12 TIME-CRITICAL REMOVAL | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| | 02-16-1999 | HO, EDWARD | OR LEAD-CONTAMINATED SOIL REMOVAL | | LEAD | | NIGEL |
| RPT | 00275 | NAVY | SITE EVALUATION AND ACTION | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | MEMORANDUM (AM) | | | | 23 OF 27 |
| 00020 | | ERNESTO | | | | | 41106473 |
| N60028 / 000952 | 11-29-1999 | NAVY | DRAFT SITE 12 TIME-CRITICAL REMOVAL | ADMIN RECORD | CAP | 012 | FRC - LAGUNA |
| | 02-16-1999 | GALANG, | OR LEAD-CONTAMINATED SOIL | | LEAD | | NIGEL |
| RPT | 00275 | ERNESTO | CORRECTIVE ACTION PLAN (CAP) | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | | | | | 23 OF 27 |
| 00017 | | RIST, DAVID | | | | | 41106473 |

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| | | | | | | | CD No. |
| N60028 / 000950 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT SITE 12 TIME- | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| LTR | 02-18-1999 | GALANG, | CRITICAL REMOVAL OR LEAD- | | CAP | | NIGEL |
| N62474-94-D-7609 | 00275 | ERNESTO | CONTAMINATED SOIL - 16 FEBRUARY 1999 | | LEAD | | 181-03-0181 |
| 00002 | 00.0 | DTSC | (1) REMOVAL SITE EVALUATION AND | | | | 23 OF 27 |
| | | RIST, DAVID | ACTION MEMORANDUM (AM), AND (2) | | | | 41106473 |
| N60028 / 000968 | 11-29-1999 | ITC | FINAL SITE 12 TECHNICAL MEMORANDUM | ADMIN RECORD | HASP | 012 | FRC - LAGUNA |
| RPT | 03-01-1999 | NAVY | (TM) SAMPLING PLAN (SP) AND HEALTH | | RM | | NIGEL |
| N62474-93-D-2151 | 00141 | GALANG, | AND SAFETY PLAN (HASP) DELINEATION | | SP | | 181-03-0181 |
| 00200 | 00.0 | ERNESTO | SAMPLING, TPH CONTAMINATED SOIL | | TM | | 24 OF 27 |
| | | | REMOVAL ACTION (RM) | | TPH | | 41106473 |
| N60028 / 000969 | 11-29-1999 | ITC | FINAL SITE 12 TECHNICAL MEMORANDUM | ADMIN RECORD | HASP | 012 | FRC - LAGUNA |
| RPT | 03-01-1999 | NAVY | (TM) SAMPLING PLAN (SP) AND HEALTH | | LEAD | | NIGEL |
| N62474-93-D-2151 | 00141 | GALANG, | AND SAFETY PLAN (HASP) DELINEATION | | RM | | 181-03-0181 |
| 00200 | 00.0 | ERNESTO | SAMPLING, LEAD CONTAMINATED | | SP | | 24 OF 27 |
| | | | REMOVAL ACTION (RM) | | TM | | 41106473 |
| N60028 / 000964 | 11-29-1999 | DTSC | COMMENTS ON THE DRAFT SITE 12 | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| CMNT | 03-04-1999 | RIST, DAVID | REMOVAL SITE EVALUATION AND ACTION | | LEAD | | NIGEL |
| NONE | NONE | NAVY | MEMORANDUM (AM) FOR TIME-CRITICAL | | | | 181-03-0181 |
| 00003 | 00.0 | GALANG, | REMOVAL OF LEAD-CONTAMINATED SOIL - | | | | 24 OF 27 |
| | | ERNESTO | 16 FEBRUARY 1999 | | | | 41106473 |

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| N60028 / 000967 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL SITE 12 | ADMIN RECORD | HASP | 012 | FRC - LAGUNA |
| LTR | 03-05-1999 | GALANG, | TECHNICAL MEMORANDUM (TM) SAMPLING | | LEAD | | NIGEL |
| N62474-93-D-2151 | 00141 | ERNESTO | PLAN (SP) AND HEALTH AND SAFETY PLAN | | RM | | 181-03-0181 |
| 00002 | 00.0 | DTSC | (HASP) DELINEATION SAMPLING, MARCH | | SP | | 24 OF 27 |
| | | RIST, DAVID | 1999 (1) TPH CONTAMINAT | | TM | | 41106473 |
| | | | | | TPH | | |
| N60028 / 000971 | 11-29-1999 | RWQCB | COMMENTS ON THE FINAL TECHNICAL | INFO | P HASP | 012 | FRC - LAGUNA |
| CMNT | 03-10-1999 | LELAND, DAVID F. | MEMORANDUM (TM) SAMPLING PLAN (SP) | REPOSITORY | RM | | NIGEL |
| NONE | NONE | NAVY | AND HEALTH AND SAFETY PLAN (HASP), | | S | | 181-03-0181 |
| 00002 | 00.0 | GALANG, | DELINEATION SAMPLING, SITE 12 TPH | | TM | | 24 OF 27 |
| | | ERNESTO | CONTAMINATED SOIL REMOVAL | | TPH | | 41106473 |
| | | | | | | | |
| N60028 / 000972 | 11-29-1999 | RWQCB | COMMENTS ON THE REVISED TEXT OF THE | INFO | HASP | 012 | FRC - LAGUNA |
| CMNT | 03-15-1999 | LELAND, DAVID F. | TECHNICAL MEMORANDUM (TM) SAMPLING | REPOSITORY | RM | | NIGEL |
| NONE | NONE | NAVY | PLAN (SP) AND HEALTH AND SAFETY PLAN | | SP | | 181-03-0181 |
| 00002 | 00.0 | GALANG, | (HASP), DELINEATION SAMPLING, SITE 12 | | TM | | 24 OF 27 |
| | | ERNESTO | TPH CONTAMINATE | | TPH | | 41106473 |
| | | | | | | | |
| N60028 / 000973 | 11-29-1999 | RWQCB | COMMENTS ON THE DRAFT SITE 12 | INFO | CAP | 012 | FRC - LAGUNA |
| CMNT | 03-15-1999 | LELAND, DAVID F. | CORRECTIVE ACTION PLAN (CAP) FOR | REPOSITORY | PETROLEUM | | NIGEL |
| NONE | NONE | NAVY | TIME-CRITICAL REMOVAL OF PETROLEUM | | TPH | | 181-03-0181 |
| 00002 | 00.0 | GALANG, | HYDROCARBON-CONTAMINATED SOIL - 16 | | | | 24 OF 27 |
| | | ERNESTO | FEBRUARY 1999 | | | | 41106473 |
| | | | | | | | |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 000974 | 11-29-1999 03-16-1999 | RAB HEHN, PAUL V. | COMMENTS ON THE DRAFT SITE 12 REMOVAL SITE EVALUATION AND ACTION MEMORANDUM (AM) FOR TIME-CRITICAL REMOVAL OF LEAD-CONTAMINATED SOIL | ADMIN RECORD | AM LEAD | 012 | FRC - LAGUNA NIGEL |
| CMNT NONE 00002 | NONE 00.0 | NAVY SULLIVAN, JAMES | | | | | 181-03-0181 24 OF 27 41106473 |
| N60028 / 000975 | 11-29-1999 03-16-1999 | RAB HEHN, PAUL V. | COMMENTS ON THE DRAFT SITE 12 CORRECTIVE ACTION PLAN (CAP) FOR TIME-CRITICAL REMOVAL OF PETROLEUM HYDROCARBON-CONTAMINATED SOIL | INFO REPOSITORY | CAP PETROLEUM TPH | 012 | FRC - LAGUNA NIGEL |
| CMNT NONE 00002 | NONE 00.0 | NAVY SULLIVAN, JAMES | | | | | 181-03-0181 24 OF 27 41106473 |
| N60028 / 000977 | 11-29-1999 03-18-1999 | NAVY GALANG, ERNESTO | REVISED FINAL TECHNICAL MEMORANDUM (TM) FOR SAMPLING, ANALYSES, AND DELINEATION OF TPH CONTAMINATED SOIL AT SITE 12 (BUILDING UNIT 1311) | INFO REPOSITORY | SAP TM TPH | 012 | FRC - LAGUNA NIGEL |
| LTR NONE 00005 | NONE 00.0 | DTSC RIST, DAVID | | | | | 181-03-0181 24 OF 27 41106473 |
| N60028 / 000980 | 11-29-1999 03-19-1999 | GEOMATRIX YAMANE, CAROL | COMMENTS ON THE DRAFT SITE 12 CORRECTIVE ACTION PLAN (CAP) FOR TIME-CRITICAL REMOVAL OF PETROLEUM HYDROCARBON-CONTAMINATED SOIL | INFO REPOSITORY | CAP PETROLEUM TPH | 012 | FRC - LAGUNA NIGEL |
| CMNT NONE 00002 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | 181-03-0181 24 OF 27 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 000984 | 11-29-1999 | DTSC | COMMENTS ON THE DRAFT ADDITIONAL | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| | 03-29-1999 | RIST, DAVID | DIOXIN CHARACTERIZATION SITE 12, OLD | | TM | | NIGEL |
| CMNT | NONE | NAVY | BUNKER AREA TECHNICAL MEMORANDUM | | | | 181-03-0181 |
| NONE | 00.0 | GALANG, | (TM) - 07 JANUARY 1999 | | | | 24 OF 27 |
| 00003 | | ERNESTO | | | | | 41106473 |
| N60028 / 000996 | 11-29-1999 | NAVY | SUBMISSION OF DRAFT FINAL SITE 12 | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA |
| | 04-14-1999 | GALANG, | CONSTRUCTION OVERSIGHT WORK PLAN | | WP | | NIGEL |
| LTR | 00275 | ERNESTO | (WP) FOR TIME CRITICAL REMOVAL OF | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | LEAD CONTAMINATED SOIL - 15 APRIL 1999 | | | | 25 OF 27 |
| 00002 | | RIST, DAVID | | | | | 41106473 |
| N60028 / 000997 | 11-29-1999 | TETRA TECH | DRAFT FINAL SITE 12 CONSTRUCTION | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA |
| | 04-15-1999 | HO, EDWARD | OVERSIGHT WORK PLAN (WP) FOR TIME | | WP | | NIGEL |
| RPT | 00275 | NAVY | CRITICAL REMOVAL OF LEAD | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | CONTAMINATED SOIL | | | | 25 OF 27 |
| 00027 | | ERNESTO | | | | | 41106473 |
| N60028 / 000991 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL SITE 12, OLD | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| | 04-19-1999 | GALANG, | BUNKER AREA (1) ADDITIONAL | | GW | | NIGEL |
| LTR | 00242 | ERNESTO | CHARACTERIZATION OF TOTAL | | PETROLEUM | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | PETROLEUM HYDROCARBONS SOIL AND | | TM | | 25 OF 27 |
| 00001 | | RIST, DAVID | GROUNDWATER SAMPLING RESULTS | | | | 41106473 |
| | | | TECHNICAL | | | | |

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| N60028 / 000992 | 11-29-1999 | TETRA TECH | FINAL SITE 12, OLD BUNKER AREA, | ADMIN RECORD | GW | 012 | FRC - LAGUNA |
| | 04-19-1999 | PRILEPIN, VLADIM | ADDITIONAL CHARACTERIZATION OF | | PETROLEUM | | NIGEL |
| RPT | 00242 | NAVY | TOTAL PETROLEUM HYDROCARBONS SOIL | | TM | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | AND GROUNDWATER SAMPLING RESULTS | | | | 25 OF 27 |
| 00050 | | ERNESTO | TECHNICAL MEMORANDUM (TM) | | | | 41106473 |
| N60028 / 000993 | 11-29-1999 | TETRA TECH | FINAL SITE 12, OLD BUNKER AREA, | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| | 04-19-1999 | PRILEPIN, VLADIM | ADDITIONAL DIOXIN CHARACTERIZATION | | TM | | NIGEL |
| RPT | 00242 | NAVY | TECHNICAL MEMORANDUM (TM) | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | | | | | 25 OF 27 |
| 00050 | | ERNESTO | | | | | 41106473 |
| N60028 / 000999 | 11-29-1999 | TETRA TECH | FINAL SITE 12 REMOVAL SITE EVALUATION | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| | 04-20-1999 | HO, EDWARD | (RSE) AND ACTION MEMORANDUM (AM) | | LEAD | | NIGEL |
| ACTM | 00275 | NAVY | FOR TIME CRITICAL REMOVAL OF LEAD | | RSE | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | CONTAMINATED SOIL | | | | 25 OF 27 |
| 00029 | | ERNESTO | | | | | 41106473 |
| N60028 / 000994 | 11-29-1999 | GEOMATRIX | COMMENTS ON THE DRAFT SITE 12 | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA |
| | 04-21-1999 | BRORBY, | CONSTRUCTION OVERSIGHT WORK PLAN | | RM | | NIGEL |
| CMNT | NONE | GREGORY | FOR TIME CRITICAL REMOVAL OF LEAD | | WP | | 181-03-0181 |
| NONE | 00.0 | NAVY | CONTAMINATED SOIL AND WORK PLAN | | | | 25 OF 27 |
| 00003 | | GALANG, | (WP), REMOVAL ACTION (RM) OF LEAD | | | | 41106473 |
| | | ERNESTO | | | | | |

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| Record Type | Record Date | Author | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 000998 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL SITE 12 | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| | 04-26-1999 | GALANG, | REMOVAL SITE EVALUATION (RSE) AND | | LEAD | | NIGEL |
| LTR | 00275 | ERNESTO | ACTION MEMORANDUM (AM) FOR TIME | | RSE | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | CRITICAL REMOVAL OF LEAD | | | | 25 OF 27 |
| 00001 | | RIST, DAVID | CONTAMINATED SOIL - 20 APRIL 1999 | | | | 41106473 |
| N60028 / 001013 | 11-29-1999 | IT CORPORATION | WORK PLAN (WP), REMOVAL ACTION (RM) | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA |
| | 05-01-1999 | | OF LEAD CONTAMINATED SOIL, BUILDING | | RM | | NIGEL |
| RPT | 00140 | NAVY | UNITS 1207 AND 1209, REVISION 0 | | WP | | 181-03-0181 |
| N62474-93-D-2151 | 00.0 | GALANG, | | | | | 25 OF 27 |
| 00032 | | ERNESTO | | | | | 41106473 |
| N60028 / 001008 | 11-29-1999 | NAVY | ADDENDUM 1 TO TECHNICAL | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA |
| | 05-14-1999 | GALANG, | MEMORANDUM (TM) SAMPLING PLAN | | RM | | NIGEL |
| LTR | NONE | ERNESTO | (MARCH 1999 DELINEATION SAMPLING) | | TM | | 181-03-0181 |
| NONE | 00.0 | DTSC | FOR THE REMOVAL ACTION (RM) OF LEAD | | | | 25 OF 27 |
| 00005 | | RIST, DAVID | CONTAMINATED SOIL AT SITE 12 (BUILDING | | | | 41106473 |
| N60028 / 001009 | 11-29-1999 | NAVY | ADDENDUM 1 TO TECHNICAL | INFO | RM | 012 | FRC - LAGUNA |
| | 05-14-1999 | GALANG, | MEMORANDUM (TM) SAMPLING PLAN | REPOSITORY | TM | | NIGEL |
| LTR | NONE | ERNESTO | (MARCH 1999 DELINEATION SAMPLING) | | TPH | | 181-03-0181 |
| NONE | 00.0 | DTSC | FOR THE REMOVAL ACTION (RM) OF TPH | | | | 25 OF 27 |
| 00005 | | RIST, DAVID | CONTAMINATED SOIL AT SITE 12 (BUILDING | | | | 41106473 |

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| Record Type | Record Date | Author | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 001010 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL SITE 12 | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| | 05-14-1999 | GALANG, | REMOVAL SITE EVALUATION, TIME | | LEAD | | NIGEL |
| LTR | 00275 | ERNESTO | CRITICAL REMOVAL OF LEAD | | WP | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | CONTAMINATED SOIL (1) ACTION | | | | 25 OF 27 |
| 00002 | | RIST, DAVID | MEMORANDUM (AM) AND (2) | | | | 41106473 |
| | | | CONSTRUCTION OVERSIG | | | | |
| N60028 / 001011 | 11-29-1999 | TETRA TECH | FINAL SITE 12 REMOVAL SITE EVALUATION, | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| | 05-14-1999 | HO, EDWARD | TIME CRITICAL REMOVAL OF LEAD | | LEAD | | NIGEL |
| RPT | 00275 | NAVY | CONTAMINATED SOIL ACTION | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | MEMORANDUM (AM) | | | | 25 OF 27 |
| 00023 | | ERNESTO | | | | | 41106473 |
| N60028 / 001012 | 11-29-1999 | TETRA TECH | FINAL SITE 12 REMOVAL SITE EVALUATION, | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA |
| | 05-14-1999 | HO, EDWARD | TIME CRITICAL REMOVAL OF LEAD | | WP | | NIGEL |
| RPT | 00275 | NAVY | CONTAMINATED SOIL CONSTRUCTION | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | OVERSIGHT WORK PLAN (WP) | | | | 25 OF 27 |
| 00029 | | ERNESTO | | | | | 41106473 |
| N60028 / 001014 | 11-29-1999 | DTSC | COMMENTS ON THE FINAL SITE 12 | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| | 05-17-1999 | RIST, DAVID | REMOVAL SITE EVALUATION AND ACTION | | LEAD | | NIGEL |
| CMNT | NONE | NAVY | MEMORANDUM (AM), FINAL | | RM | | 181-03-0181 |
| NONE | 00.0 | GALANG, | CONSTRUCTION OVERSIGHT WORK PLAN | | WP | | 25 OF 27 |
| 00005 | | ERNESTO | (WP), AND FINAL REMOVAL ACTION (RM) | | | | 41106473 |
| | | | WORK | | | | |

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| Record Type | Record Date | Author | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 001015 | 11-29-1999 | GEOMATRIX | COMMENTS ON THE REVISED SITE 12 | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| | 05-21-1999 | YAMANE, CAROL | REMOVAL SITE EVALUATION AND ACTION | | LEAD | | NIGEL |
| CMNT | NONE | L. | MEMORANDUM (AM), FINAL | | RM | | 181-03-0181 |
| NONE | 00.0 | NAVY | CONSTRUCTION OVERSIGHT WORK PLAN | | WP | | 25 OF 27 |
| 00005 | | GALANG, ERNESTO | (WP), AND FINAL REMOVAL ACTION (RM) WOR | | | | 41106473 |
| N60028 / 001016 | 11-29-1999 | RWQCB | COMMENTS ON THE ADDENDUM TO | INFO | TM | 012 | FRC - LAGUNA |
| | 05-24-1999 | LELAND, DAVID F. | TECHNICAL MEMORANDUM (TM) SAMPLING | REPOSITORY | TPH | | NIGEL |
| CMNT | NONE | NAVY | PLAN, DELINEATION SAMPLING - DO 141, | | | | 181-03-0181 |
| NONE | 00.0 | GALANG, ERNESTO | SITE 12 TPH CONTAMINATED SOIL - 14 MAY 1999 | | | | 25 OF 27 |
| 00002 | | | | | | | 41106473 |
| N60028 / 001018 | 11-29-1999 | GEOMATRIX | COMMENTS OF ADDENDUM 1 TO | INFO | RM | 012 | FRC - LAGUNA |
| | 05-24-1999 | YAMANE, CAROL | TECHNICAL MEMORANDUM (TM) SAMPLING | REPOSITORY | TM | | NIGEL |
| CMNT | NONE | L. | PLAN (MARCH 1999 DELINEATION | | TPH | | 181-03-0181 |
| NONE | 00.0 | NAVY | SAMPLING) FOR THE REMOVAL ACTION | | | | 25 OF 27 |
| 00002 | | GALANG, ERNESTO | (RM) OF TPH CONTAMINATED SOIL AT SITE 1 | | | | 41106473 |
| N60028 / 001019 | 11-29-1999 | GEOMATRIX | COMMENTS OF ADDENDUM 1 TO | INFO | LEAD | 012 | FRC - LAGUNA |
| | 05-24-1999 | YAMANE, CAROL | TECHNICAL MEMORANDUM (TM) SAMPLING | REPOSITORY | RM | | NIGEL |
| CMNT | NONE | L. | PLAN (MARCH 1999 DELINEATION | | TM | | 181-03-0181 |
| NONE | 00.0 | NAVY | SAMPLING) FOR THE REMOVAL ACTION | | | | 25 OF 27 |
| 00003 | | GALANG, ERNESTO | (RM) OF LEAD CONTAMINATED SOIL AT SITE | | | | 41106473 |

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| | | | | | | | CD No. |
| N60028 / 001020 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT FIELD | ADMIN RECORD | DIOXINS | 012 | FRC - LAGUNA |
| LTR | 05-24-1999 | GALANG, | SAMPLING PLAN ADDENDUM FOR | | GAS | | NIGEL |
| N62474-94-D-7609 | 00242 | ERNESTO | ADDITIONAL SAMPLING OF DIOXINS, | | METALS | | 181-03-0181 |
| 00002 | 00.0 | DTSC | METALS, AND LANDFILL GAS AT DISPOSAL | | | | 25 OF 27 |
| | | RIST, DAVID | AREA A, SITE 12 - 24 MAY 1999 | | | | 41106473 |
| N60028 / 001021 | 11-29-1999 | TETRA TECH | DRAFT FIELD SAMPLING PLAN ADDENDUM | ADMIN RECORD | DIOXINS | 012 | FRC - LAGUNA |
| RPT | 05-24-1999 | PRILEPIN, VLADIM | FOR ADDITIONAL SAMPLING OF DIOXINS, | | GAS | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | METALS, AND LANDFILL GAS AT DISPOSAL | | METALS | | 181-03-0181 |
| 00033 | 00.0 | GALANG, | AREA A, SITE 12 | | | | 25 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 001025 | 11-29-1999 | IT CORPORATION | REVISED FINAL SITE 12 WORK PLAN (WP) | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA |
| RPT | 05-27-1999 | CROOKS, VALERIE | REMOVAL ACTION (RM), TIME-CRITICAL | | RM | | NIGEL |
| N62474-93-D-2151 | 00140 | NAVY | REMOVAL OF LEAD-CONTAMINATED SOIL, | | WP | | 181-03-0181 |
| 00030 | 00.0 | GALANG, | BUILDING UNITS 1207 AND 1209, REVISION 1 | | | | 25 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 001022 | 11-29-1999 | NAVY | SUBMISSION OF THE REVISED FINAL SITE | ADMIN RECORD | AM | 012 | FRC - LAGUNA |
| LTR | 05-28-1999 | GALANG, | 12, TIME-CRITICAL REMOVAL OF LEAD- | | LEAD | | NIGEL |
| N62474-94-D-7609 | 00275 | ERNESTO | CONTAMINATED SOIL, (1) REMOVAL SITE | | RM | | 181-03-0181 |
| 00002 | 00.0 | DTSC | EVALUATION AND ACTION MEMORANDUM | | WP | | 25 OF 27 |
| | | RIST, DAVID | (AM), (2) CONSTRUCTION | | | | 41106473 |

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| Record Type | Record Date | Author | | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC/SWDIV Box No. |
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| | | | | | | | | CD No. |
| N60028 / 001023 | 11-29-1999 | TETRA TECH | REVISED FINAL SITE 12 REMOVAL SITE | ADMIN RECORD | AM | 012 | FRC - LAGUNA | |
| RPT | 05-28-1999 | HO, EDWARD | EVALUATION AND ACTION MEMORANDUM | | LEAD | | NIGEL | |
| N62474-94-D-7609 | 00275 | NAVY | (AM), TIME-CRITICAL REMOVAL OF LEAD- | | | | 181-03-0181 | |
| 00030 | 00.0 | GALANG, ERNESTO | CONTAMINATED SOIL | | | | 25 OF 27 | |
| | | | | | | | | 41106473 |
| N60028 / 001024 | 11-29-1999 | TETRA TECH | REVISED FINAL SITE 12 CONSTRUCTION | ADMIN RECORD | LEAD | 012 | FRC - LAGUNA | |
| RPT | 05-28-1999 | HO, EDWARD | OVERSIGHT WORK PLAN (WP), TIME- | | WP | | NIGEL | |
| N62474-94-D-7609 | 00275 | NAVY | CRITICAL REMOVAL OF LEAD- | | | | 181-03-0181 | |
| 00039 | 00.0 | GALANG, ERNESTO | CONTAMINATED SOIL | | | | 25 OF 27 | |
| | | | | | | | | 41106473 |
| N60028 / 001026 | 11-29-1999 | TETRA TECH | DRAFT REMEDIAL INVESTIGATION (RI) | ADMIN RECORD | OU | 012 | FRC - LAGUNA | |
| RPT | 06-01-1999 | WICKHAM, JERRY | REPORT SITE 12 OPERABLE UNIT (OU), | | RI | | NIGEL | |
| N62474-94-D-7609 | 00150 | NAVY | VOLUME 1 OF 2 | | | | 181-03-0181 | |
| 03000 | 00.0 | GALANG, ERNESTO | | | | | 25 OF 27 | |
| | | | | | | | | 41106473 |
| N60028 / 001027 | 11-29-1999 | TETRA TECH | DRAFT REMEDIAL INVESTIGATION (RI) | ADMIN RECORD | OU | 012 | FRC - LAGUNA | |
| RPT | 06-01-1999 | WICKHAM, JERRY | REPORT SITE 12 OPERABLE UNIT (OU), | | RI | | NIGEL | |
| N62474-94-D-7609 | 00150 | NAVY | VOLUME 2 OF 2 | | | | 181-03-0181 | |
| 03000 | 00.0 | GALANG, ERNESTO | | | | | 26 OF 27 | |
| | | | | | | | | 41106473 |

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| Record Type | Record Date | Author | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 001032 | 11-29-1999 | TETRA TECH | DRAFT FINAL SITE 12 CORRECTIVE ACTION | ADMIN RECORD | CAP | 012 | FRC - LAGUNA |
| | 06-04-1999 | HO, EDWARD | PLAN (CAP) FOR TIME-CRITICAL REMOVAL | | GW | | NIGEL |
| RPT | 00276 | NAVY | OF PETROLEUM HYDROCARBON- | | HYDROCARBON | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | CONTAMINATED SOIL AND | | PETROLEUM | | 26 OF 27 |
| 00027 | | ERNESTO | GROUNDWATER REMEDIATION | | | | 41106473 |
| N60028 / 001031 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT FINAL SITE 12 | ADMIN RECORD | CAP | 012 | FRC - LAGUNA |
| | 06-07-1999 | GALANG, | CORRECTIVE ACTION PLAN (CAP) FOR | | GW | | NIGEL |
| LTR | 00276 | ERNESTO | TIME-CRITICAL REMOVAL OF PETROLEUM | | HYDROCARBON | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | HYDROCARBON-CONTAMINATED SOIL AND | | PETROLEUM | | 26 OF 27 |
| 00001 | | RIST, DAVID | GROUNDWATER REMEDIATIO | | | | 41106473 |
| N60028 / 001033 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL FIELD | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| | 06-07-1999 | GALANG, | SAMPLING PLAN ADDENDUM FOR | | FSP | | NIGEL |
| LTR | 00242 | ERNESTO | ADDITIONAL SAMPLING OF DIOXINS, | | GAS | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | METALS, AND LANDFILL GAS AT DEBRIS | | LANDFILL | | 26 OF 27 |
| 00001 | | RIST, DAVID | DISPOSAL AREA A, SITE 12 - 07 JUNE 199 | | METALS | | 41106473 |
| N60028 / 001034 | 11-29-1999 | TETRA TECH | FINAL FIELD SAMPLING PLAN ADDENDUM | ADMIN RECORD | DIOXIN | 012 | FRC - LAGUNA |
| | 06-07-1999 | PRILEPIN, VLADIM | FOR ADDITIONAL SAMPLING OF DIOXINS, | | FSP | | NIGEL |
| RPT | 00242 | NAVY | METALS, AND LANDFILL GAS AT DEBRIS | | GAS | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | DISPOSAL AREA A, SITE 12 | | LANDFILL | | 26 OF 27 |
| 00037 | | ERNESTO | | | METALS | | 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 001035 | 11-29-1999 06-08-1999 | RWQCB LELAND, DAVID F. | COMMENTS ON THE DRAFT FINAL SITE 12 CORRECTIVE ACTION PLAN (CAP) FOR TIME-CRITICAL REMOVAL OF PETROLEUM HYDROCARBON-CONTAMINATED SOIL - 07 JUNE 1999 | INFO REPOSITORY | CAP HYDROCARBON PETROLEUM | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| CMNT NONE 00002 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |
| N60028 / 001038 | 11-29-1999 06-10-1999 | DTSC RIST, DAVID | COMMENTS ON THE DRAFT FINAL SITE 12 CORRECTIVE ACTION PLAN (CAP) FOR TIME-CRITICAL REMOVAL OF PETROLEUM HYDROCARBON-CONTAMINATED SOIL AND GROUNDWATER REMEDIATION | INFO REPOSITORY | CAP GW HYDROCARBON PETROLEUM | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| CMNT NONE 00004 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |
| N60028 / 001040 | 11-29-1999 06-14-1999 | GEOMATRIX BRORBY, GREGORY | COMMENTS ON THE DRAFT FINAL SITE 12 CORRECTIVE ACTION PLAN (CAP) FOR TIME-CRITICAL REMOVAL OF PETROLEUM HYDROCARBON-CONTAMINATED SOIL AND GROUNDWATER REMEDIATION | INFO REPOSITORY | CAP GW HYDROCARBON PETROLEUM | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| CMNT NONE 00003 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |
| N60028 / 001041 | 11-29-1999 06-14-1999 | DTSC LANDIS, ANTHONY | COMMENTS ON THE FINAL SITE 12 REMOVAL SITE EVALUATION AND ACTION MEMORANDUM (AM), FINAL CONSTRUCTION OVERSIGHT WORK PLAN (WP), AND FINAL REMOVAL ACTION WORK PLAN | ADMIN RECORD | AM LEAD RAW RM WP | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| CMNT NONE 00002 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |

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| Record Type | Record Date | Author | | | | | FRC Access. No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 001045 | 11-29-1999 | TETRA TECH | DRAFT ADDITIONAL CHARACTERIZATION | ADMIN RECORD | HYDROCARBON | 012 | FRC - LAGUNA |
| RPT | 06-25-1999 | PRILEPIN, VLADIM | OF TOTAL PETROLEUM HYDROCARBONS, | | LEACHATE | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | SITE 12, OLD BUNKER AREA, LEACHATE | | PETROLEUM | | 181-03-0181 |
| 00027 | 00.0 | GALANG, ERNESTO | FIELD STUDIES TECHNICAL MEMORANDUM (TM) | | TM | | 26 OF 27 |
| | | | | | | | 41106473 |
| N60028 / 001046 | 11-29-1999 | TETRA TECH | DRAFT ADDITIONAL CHARACTERIZATION | ADMIN RECORD | FATE | 012 | FRC - LAGUNA |
| RPT | 06-25-1999 | PRILEPIN, VLADIM | OF TOTAL PETROLEUM HYDROCARBONS, | | HYDROCARBON | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | SITE 12, OLD BUNKER AREA, FATE AND | | PETROLEUM | | 181-03-0181 |
| 00049 | 00.0 | GALANG, ERNESTO | TRANSPORT MODELING OF TOTAL | | TM | | 26 OF 27 |
| | | | PETROLEUM HYDROCARBONS TECHNICA | | TRANSPORT | | 41106473 |
| N60028 / 001044 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT ADDITIONAL | ADMIN RECORD | HYDROCARBON | 012 | FRC - LAGUNA |
| LTR | 06-28-1999 | GALANG, ERNESTO | CHARACTERIZATION OF TOTAL | | LEACHATE | | NIGEL |
| N62474-94-D-7609 | 00242 | DTSC | PETROLEUM HYDROCARBONS, SITE 12, | | PETROLEUM | | 181-03-0181 |
| 00001 | 00.0 | RIST, DAVID | OLD BUNKER AREA, 25 JUNE 1999 (1) | | TM | | 26 OF 27 |
| | | | LEACHATE FIELD STUDIES TECHNICAL | | | | 41106473 |
| N60028 / 001047 | 11-29-1999 | GEOMATRIX | COMMENTS ON THE DRAFT REMEDIAL | ADMIN RECORD | | 012 | FRC - LAGUNA |
| CMNT | 07-19-1999 | BRORBY, GREGORY | INVESTIGATION (RI) REPORT FOR SITE 12 | | | | NIGEL |
| NONE | NONE | NAVY | OPERABLE UNIT (OU) | | | | 181-03-0181 |
| 00008 | 00.0 | GALANG, ERNESTO | | | | | 26 OF 27 |
| | | | | | | | 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 001050 | 11-29-1999 07-27-1999 | RWQCB LELAND, DAVID F. | COMMENTS ON THE DRAFT ADDITIONAL CHARACTERIZATION OF TOTAL PETROLEUM HYDROCARBONS, SITE 12 OLD BUNKER AREA, LEACHATE FIELD STUDIES, TECHNICAL MEMORANDUM (TM) - 25 | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| CMNT NONE 00002 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |
| N60028 / 001053 | 11-29-1999 07-30-1999 | GEOMATRIX YAMANE, CAROL L. | COMMENTS ON THE ADDITIONAL CHARACTERIZATION OF TOTAL PETROLEUM HYDROCARBONS AT SITE 12 OLD BUNKER AREA: DRAFT FATE AND TRANSPORT MODELING OF TPH TECHNICAL MEMORAN | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| CMNT NONE 00002 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |
| N60028 / 001057 | 11-29-1999 08-04-1999 | TETRA TECH WICKE, ANJU | FIELD SAMPLING PLAN ADDENDUM, ADDITIONAL CHARACTERIZATION OF TOTAL PETROLEUM HYDROCARBONS (TPH) AT SITE 12 OLD BUNKER AREA | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| LTR NONE 00010 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |
| N60028 / 001058 | 11-29-1999 08-04-1999 | DTSC RIST, DAVID | COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION (RI) REPORT SITE 12 OPERABLE UNIT (OU) - 01 JUNE 1999 | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL 181-03-0181 26 OF 27 41106473 |
| CMNT NONE 00014 | NONE 00.0 | NAVY GALANG, ERNESTO | | | | | |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | FRC Warehouse Loc. |
| | | | | | | | CD No. |
| N60028 / 001059 | 11-29-1999 | GEOMATRIX | COMMENTS ON THE FIELD SAMPLING PLAN | ADMIN RECORD | | 012 | FRC - LAGUNA |
| CMNT | 08-10-1999 | BRORBY, | ADDENDUM FOR ADDITIONAL | | | | NIGEL |
| NONE | NONE | GREGORY | CHARACTERIZATION OF TOTAL | | | | 181-03-0181 |
| 00002 | 00.0 | NAVY | PETROLEUM HYDROCARBONS AT SITE 12 | | | | 26 OF 27 |
| | | GALANG, | | | | | 41106473 |
| | | ERNESTO | | | | | |
| N60028 / 001060 | 11-29-1999 | RWQCB | COMMENTS ON THE FIELD SAMPLING PLAN | ADMIN RECORD | | 012 | FRC - LAGUNA |
| CMNT | 08-10-1999 | LELAND, DAVID F. | ADDENDUM FOR ADDITIONAL | | | | NIGEL |
| NONE | NONE | NAVY | CHARACTERIZATION OF TOTAL | | | | 181-03-0181 |
| 00002 | 00.0 | GALANG, | PETROLEUM HYDROCARBONS AT SITE 12 | | | | 26 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 001067 | 11-29-1999 | RWQCB | COMMENTS ON THE DRAFT SITE 12 | INFO | | 012 | FRC - LAGUNA |
| CMNT | 09-01-1999 | LELAND, DAVID F. | OPERABLE UNIT REMEDIAL INVESTIGATION | REPOSITORY | | | NIGEL |
| NONE | NONE | NAVY | | | | | 181-03-0181 |
| 00006 | 00.0 | GALANG, | | | | | 26 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 000038 | 12-03-1999 | EFA WEST SAN | MINUTES OF RESTORATION ADVISORY | ADMIN RECORD | BRAC | 012 | FRC - LAGUNA |
| NONE | 09-21-1999 | BRUNO | BOARD MEETING HELD SEPTEMBER 21, | INFO | MTG MINS | | NIGEL |
| MM | NONE | E. GALANG | 1999 (MEETING NO. 59) | REPOSITORY | RAB | | 181-03-0181 |
| NONE | 10.4 | VARIOUS | | | SOIL | | 2 OF 27 |
| 00011 | | AGENCIES | | | | | 41106473 |

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|--------------------|-------------------|------------------|--------------------------------------|----------------|----------|------------|--------------------|
| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001075 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT SITE 12 | ADMIN RECORD | ACTMEMO | 012 | FRC - LAGUNA |
| LTR | 10-01-1999 | GALANG, | REMOVAL SITE EVALUATION AND ACTION | | RSE | BLDG. 1133 | NIGEL |
| N62474-94-D-7609 | 00255 | ERNESTO | MEMORANDUM FOR TIME-CRITICAL | | SOIL | | 181-03-0181 |
| 00002 | 00.0 | DTSC | REMOVAL OF LEAD-CONTAMINATED SOIL | | TCRA | | 27 OF 27 |
| | | RIST, DAVID | NEAR BUILDING 1133 - 01 OCTOBER | | | | 41106473 |
| N60028 / 001076 | 11-29-1999 | TETRA TECH | DRAFT REMOVAL SITE EVALUATION AND | ADMIN RECORD | ACTMEMO | 012 | FRC - LAGUNA |
| KTR. BARCODE | 10-01-1999 | WICKHAM, JERRY | ACTION MEMORANDUM FOR TIME- | | RSE | BLDG. 1133 | NIGEL |
| D000062500 | 00255 | NAVY | CRITICAL REMOVAL OF LEAD- | | SOIL | | 181-03-0181 |
| RPT | 00.0 | GALANG, | CONTAMINATED SOIL NEAR BUILDING 1133 | | TCRA | | 27 OF 27 |
| N62474-94-D-7609 | | ERNESTO | | | | | 41106473 |
| 00022 | | | | | | | |
| N60028 / 000050 | 12-06-1999 | EFA WEST SAN | FINAL - REMEDIAL | ADMIN RECORD | ARAR | 001 | FRC - LAGUNA |
| NONE | 10-04-1999 | BRUNO | INVESTIGATION/FEASIBILITY STUDY | INFO | FS | 003 | NIGEL |
| MM | NONE | E. GALANG | RPM/BCT MEETING MINUTES - 04 OCTOBER | REPOSITORY | GW | 006 | 181-03-0181 |
| NONE | 10.4 | VARIOUS | 1999 - INCLUDES AGENDA AND VARIOUS | | MTG MINS | 012 | 2 OF 27 |
| 00020 | | AGENCIES | HANDOUTS | | RI | | 41106473 |
| | | | | | TPH | | |
| N60028 / 000018 | 12-03-1999 | DTSC BERKELEY | AREAS AND/OR ISSUES IN NEED OF | ADMIN RECORD | GW | 012 | FRC - LAGUNA |
| NONE | 10-05-1999 | D. MURPHY | FURTHER EVALUATION WITHIN SITE 12 | INFO | LF | | NIGEL |
| LTR | NONE | EFA WEST SAN | | REPOSITORY | SOIL | | 181-03-0181 |
| NONE | 01.6 | BRUNO | | | | | 2 OF 27 |
| 00010 | | E. GALANG | | | | | 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 001077 | 11-29-1999 | NAVY | SUBMISSION OF THE DRAFT FIELD | ADMIN RECORD | | 012 | FRC - LAGUNA |
| LTR | 10-06-1999 | GALANG, | SAMPLING PLAN ADDENDUM (1) SITE | | | | NIGEL |
| N62474-94-D-7609 | 00314 | ERNESTO | INVESTIGATION OF THE FORMER | | | | 181-03-0181 |
| 00001 | 00.0 | DTSC | STORAGE YARD - 06 OCTOBER 1999, AND | | | | 27 OF 27 |
| | | RIST, DAVID | (2) FOR ADDITIONAL INVESTIGATION IN | | | | 41106473 |
| N60028 / 001078 | 11-29-1999 | TETRA TECH | DRAFT FIELD SAMPLING PLAN ADDENDUM | ADMIN RECORD | | 012 | FRC - LAGUNA |
| RPT | 10-06-1999 | WICKE, ANJU | SITE INVESTIGATION OF THE FORMER | | | | NIGEL |
| N62474-94-D-7609 | 00314 | NAVY | STORAGE YARD | | | | 181-03-0181 |
| 00030 | 00.0 | GALANG, | | | | | 27 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 001079 | 11-29-1999 | TETRA TECH | DRAFT FIELD SAMPLING PLAN ADDENDUM | ADMIN RECORD | | 012 | FRC - LAGUNA |
| RPT | 10-06-1999 | PRILEPIN, VLADIM | FOR ADDITIONAL INVESTIGATION IN THE | | | | NIGEL |
| N62474-94-D-7609 | 00314 | NAVY | VICINITY OF BUILDINGS 1202, 1217, 1228, | | | | 181-03-0181 |
| 00023 | 00.0 | GALANG, | AND 1230 SITE 12 | | | | 27 OF 27 |
| | | ERNESTO | | | | | 41106473 |
| N60028 / 001081 | 11-29-1999 | NAVY | RECOMMENDATION FOR THE USE OF | ADMIN RECORD | | 012 | FRC - LAGUNA |
| LTR | 10-08-1999 | GALANG, | MONITORED NATURAL ATTENUATION | | | | NIGEL |
| NONE | NONE | ERNESTO | (MNA) FOR TOTAL PETROLEUM | | | | 181-03-0181 |
| 00005 | 00.0 | DTSC | HYDROCARBON (TPH) IN BUILDING | | | | 27 OF 27 |
| | | RIST, DAVID | 1311/1313 AT SITE 12 | | | | 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 001082 | 11-29-1999 | NAVY | FIGURE 2 REPLACEMENT FOR DRAFT SITE 12 REMOVAL SITE EVALUATION (RSE) AND ACTION MEMORANDUM FOR TIME- | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL |
| LTR | 10-08-1999 | GALANG, ERNESTO | CRITICAL REMOVAL OF LEAD- | | | | 181-03-0181 |
| NONE | NONE | DTSC | CONTAMINATED SOIL NEAR BUILDING 1133 | | | | 27 OF 27 |
| 00002 | 00.0 | RIST, DAVID | | | | | 41106473 |
| N60028 / 001083 | 11-29-1999 | DTSC | COMMENTS OF THE DRAFT SITE 12 REMOVAL SITE EVALUATION AND ACTION MEMORANDUM FOR TIME-CRITOCAL | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL |
| CMNT | 10-12-1999 | MURPHY, DANIEL E | REMOVAL OF LEAD-CONTAMINATED SOIL NEAR BUILDING 1133 | | | | 181-03-0181 |
| N62474-94-D-7609 | 00255 | NAVY | | | | | 27 OF 27 |
| 00003 | 00.0 | GALANG, ERNESTO | | | | | 41106473 |
| N60028 / 001084 | 11-29-1999 | RWQCB | COMMENTS ON THE DRAFT FIELD SAMPLING PLANS FOR SITE 12 IN THE VICINITY OF THE FORMER STORAGE YARD AND MARINER DRIVE (BUILDINGS 1202, 1217, 1228, AND 1230) | ADMIN RECORD | COMMENTS FSP | 012 | FRC - LAGUNA NIGEL |
| CMNT | 10-13-1999 | MAXWELL, CHRIS | | | | BLDG. 1202 | 181-03-0181 |
| NONE | NONE | NAVY | | | | BLDG. 1217 | 27 OF 27 |
| 00003 | 00.0 | GALANG, ERNESTO | | | | BLDG. 1228 | |
| | | | | | | BLDG. 1230 | 41106473 |
| N60028 / 001087 | 11-29-1999 | TETRA TECH | FINAL FIELD SAMPLING PLAN ADDENDUM SITE INVESTIGATION OF THE FORMER STORAGE YARD | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL |
| RPT | 10-15-1999 | WICKE, ANJU | | | | | 181-03-0181 |
| N62474-94-D-7609 | 00314 | NAVY | | | | | 27 OF 27 |
| 00050 | 00.0 | GALANG, ERNESTO | | | | | 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 000019 | 12-03-1999 | TREASURE | RESTORATION ADVISORY BOARD (RAB) | ADMIN RECORD | MTG MINS | 001 | FRC - LAGUNA |
| NONE | 10-19-1999 | ISLAND RAB | MEETING TRANSCRIPTS (MEETING NO. | INFO | RAB | 003 | NIGEL |
| MM | NONE | | 60) - 19 OCTOBER 1999 | REPOSITORY | | 006 | 181-03-0181 |
| NONE | 10.4 | PUBLIC INTEREST | | | | 012 | 2 OF 27 |
| 00039 | | | | | | | 41106473 |
| N60028 / 001086 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL FIELD | ADMIN RECORD | | 012 | FRC - LAGUNA |
| | 10-19-1999 | GALANG, | SAMPLING PLAN ADDENDUM SITE | | | | NIGEL |
| LTR | 00314 | ERNESTO | INVESTIGATION OF THE FORMER | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | DTSC | STORAGE YARD - 15 OCTOBER 1999 | | | | 27 OF 27 |
| 00001 | | RIST, DAVID | | | | | 41106473 |
| N60028 / 001092 | 11-29-1999 | GEOMATRIX | COMMENTS ON THE APPENDIX A OF THE | ADMIN RECORD | | 012 | FRC - LAGUNA |
| | 10-19-1999 | BRORBY, | DRAFT FIELD SAMPLING PLAN ADDENDUM | | | | NIGEL |
| CMNT | NONE | GREGORY | FOR ADDITIONAL INVESTIGATION IN THE | | | | 181-03-0181 |
| NONE | 00.0 | NAVY | VICINITY OF BUILDINGS 1202, 1217, 1228, | | | | 27 OF 27 |
| 00003 | | GALANG, | AND 1230, SITE 12 | | | | 41106473 |
| | | ERNESTO | | | | | |
| N60028 / 001090 | 11-29-1999 | TETRA TECH | FINAL ADDITIONAL CHARACTERIZATION OF | ADMIN RECORD | | 012 | FRC - LAGUNA |
| | 10-21-1999 | PRILEPIN, VLADIM | TOTAL PETROLEUM HYDROCARBONS, SITE | | | | NIGEL |
| RPT | 00242 | NAVY | 12 OLD BUNKER AREA FATE AND | | | | 181-03-0181 |
| N62474-94-D-7609 | 00.0 | GALANG, | TRANSPORT MODELING OF TOTAL | | | | 27 OF 27 |
| 00100 | | ERNESTO | PETROLEUM HYDROCARBONS TECHNICAL | | | | 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 001091 | 11-29-1999 | TETRA TECH | FINAL ADDITIONAL CHARACTERIZATION OF | ADMIN RECORD | | 012 | FRC - LAGUNA |
| RPT | 10-21-1999 | PRILEPIN, VLADIM | TOTAL PETROLEUM HYDROCARBONS, SITE | | | | NIGEL |
| N62474-94-D-7609 | 00242 | NAVY | 12 OLD BUNKER AREA, LEACHATE | | | | 181-03-0181 |
| 00050 | 00.0 | GALANG, ERNESTO | SAMPLING RESULTS TECHNICAL MEMORANDUM | | | | 27 OF 27 |
| | | | | | | | 41106473 |
| N60028 / 001088 | 11-29-1999 | NAVY | REMEDIAL PROJECT MANAGER AND BRAC | INFO | BCT | 012 | FRC - LAGUNA |
| MM | 10-22-1999 | GALANG, ERNESTO | CLOSURE TEAM (RPM/BCT) MEETING | REPOSITORY | RPM | BASEWIDE | NIGEL |
| NONE | NONE | DTSC | MINUTES - 01 SEPTEMBER 1999, SITE 12 | | | | 181-03-0181 |
| 00053 | 00.0 | RIST, DAVID | PROJECT TEAM MEETING MINUTES - 13 AUGUST 1999, RPM/BCT SITE 12 DEBRIS DISPOSAL AREA PROJECT TEAM MEET | | | | 27 OF 27 |
| | | | | | | | 41106473 |
| N60028 / 001089 | 11-29-1999 | NAVY | SUBMISSION OF THE FINAL ADDITIONAL | ADMIN RECORD | | 012 | FRC - LAGUNA |
| LTR | 10-22-1999 | GALANG, ERNESTO | CHARACTERIZATION OF TOTAL | | | | NIGEL |
| N62474-94-D-7609 | 00242 | DTSC | PETROLEUM HYDROCARBONS, SITE 12 | | | | 181-03-0181 |
| 00001 | 00.0 | RIST, DAVID | OLD BUNKER AREA (1) FATE AND TRANSPORT MODELING OF TOTAL PETROLEUM HY | | | | 27 OF 27 |
| | | | | | | | 41106473 |
| N60028 / 001095 | 11-29-1999 | RWQCB | COMMENTS ON THE PROPOSED | ADMIN RECORD | | 012 | FRC - LAGUNA |
| CMNT | 10-22-1999 | MAXWELL, CHRIS | MONITORED NATURAL ATTENUATION FOR | | | | NIGEL |
| NONE | NONE | NAVY | PETROLEUM HYDROCARBONS IN THE | | | | 181-03-0181 |
| 00003 | 00.0 | GALANG, ERNESTO | VICINITY OF BUILDINGS 1311 AND 1313 AT SITE 12 | | | | 27 OF 27 |
| | | | | | | | 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 000025 | 12-03-1999 | CRWQCB - SAN FRANCISCO | COMMENTS ON 1) DRAFT FIELD SAMPLING AND ANALYSIS PLAN AND 2) FINAL | ADMIN RECORD | COMMENTS | 006 | FRC - LAGUNA |
| NONE | 10-27-1999 | | | INFO | GW | 012 | NIGEL |
| MISC | NONE | C. MAXWELL | REMEDIAL INVESTIGATION WORK PLAN | REPOSITORY | MONITORING | 014 | 181-03-0181 |
| NONE | 10.1 | EFA WEST SAN BRUNO | FOR UST SITES | | RI | 015 | 2 OF 27 |
| 00007 | | E. GALANG | | | SAP | 016 | |
| | | | | | SOIL | 020 | 41106473 |
| | | | | | TPH | 022 | |
| | | | | | UST | 025 | |
| | | | | | WORK PLAN | UST 227 | |
| N60028 / 000026 | 12-03-1999 | EFA WEST SAN BRUNO | DRAFT - FIELD SAMPLING PLAN ADDENDUM FOR INVESTIGATION OF THE ELEMENTARY | ADMIN RECORD | METALS | 012 | FRC - LAGUNA |
| NONE | 10-28-1999 | | SCHOOL AREA | INFO | PCB | | NIGEL |
| PLAN | 00314 | E. GALANG | | REPOSITORY | SAP | | 181-03-0181 |
| N62474-94-D-7609 | 03.1 | VARIOUS AGENCIES | | | SOIL | | 2 OF 27 |
| 00030 | | | | | TPH | | |
| | | | | | VOC | | 41106473 |
| N60028 / 000028 | 12-03-1999 | EFA WEST SAN BRUNO | FINAL - FIELD SAMPLING PLAN ADDENDUM FOR ADDITIONAL INVESTIGATION IN THE | ADMIN RECORD | METALS | 012 | FRC - LAGUNA |
| NONE | 11-02-1999 | | VICINITY OF BUILDINGS 1202, 1217, 1228 | INFO | PCB | | NIGEL |
| PLAN | 00242 | E. GALANG | AND 1230 | REPOSITORY | SAP | | 181-03-0181 |
| N62474-94-D-7609 | 03.1 | VARIOUS AGENCIES | | | SOIL | | 2 OF 27 |
| 00035 | | | | | SVOC | | |
| | | | | | TPH | | 41106473 |
| | | | | | VOC | | |
| N60028 / 000030 | 12-03-1999 | GEOMATRIX | COMMENTS ON THE DRAFT SITE 12 | ADMIN RECORD | ACTMEMO | 012 | FRC - LAGUNA |
| NONE | 11-02-1999 | | REMOVAL SITE EVALUATION AND ACTION | INFO | COMMENTS | | NIGEL |
| MISC | NONE | EFA WEST SAN BRUNO | MEMORANDUM FOR TIME-CRITICAL | REPOSITORY | METALS | | 181-03-0181 |
| NONE | 10.1 | | REMOVAL ACTION OF LEAD- | | RSE | | 2 OF 27 |
| 00002 | | E. GALANG | CONTAMINATED SOIL NEAR BUILDING 1133 | | SOIL | | |
| | | | | | | | 41106473 |

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|--------------------|------------------|------------|---------------------|-------------|-------------|-----------|------------------|---------|-----------------------|---------------------------|------------|-----------|---|------------------------------------|---|--------------------------|--|
| N60028 / 000032 | NONE | 12-03-1999 | EFA WEST SAN BRUNO | NONE | 11-04-1999 | E. GALANG | | | VARIOUS AGENCIES | 00003 | 01.1 | | MONTHLY STATUS REPORT FOR OCTOBER 1999 | ADMIN RECORD INFO REPOSITORY | | 006 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 000039 | NONE | 12-06-1999 | GEOMATRIX C. YAMANE | NONE | 11-04-1999 | E. GALANG | | | EFA WEST SAN BRUNO | 00003 | 10.1 | | COMMENTS ON DRAFT FILED SAMPLING PLAN ADDENDUM FOR INVESTIGATION OF THE ELEMENTARY SCHOOL AREA | ADMIN RECORD INFO REPOSITORY | COMMENTS FSP PCB SOIL VOC | 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 000041 | NONE | 12-06-1999 | EFA WEST SAN BRUNO | RPT | 11-09-1999 | E. GALANG | | | VARIOUS AGENCIES | N62474-94-D-7609 00018 | 02.5 | | FINAL - REMOVAL SITE EVALUATION AND ACTION MEMORANDUM FOR TIME-CRITICAL REMOVAL OF LEAD-CONATMINATED SOIL NEAR BUILDING 1133 | ADMIN RECORD INFO REPOSITORY | ACTMEMO METALS RSE SOIL TPH | 012 BLDG. 1133 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 000042 | NONE | 12-06-1999 | EFA WEST SAN BRUNO | MM | 11-16-1999 | E. GALANG | | | NAVSTA TI RAB MEMBERS | 00018 | 10.4 | | DRAFT - RESTORATION ADVISORY BOARD MEETING MINUTES - 19 OCTOBER 1999 AND AGENDA AND HANDOUTS FOR 16 NOVEMBER 1999 RAB MEETING | ADMIN RECORD INFO REPOSITORY | MTG MINS RAB | 006 012 021 024 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC/SWDIV Box No. |
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| | | | | | | | CD No. |
| N60028 / 000044 | 12-06-1999 | CRWQCB - SAN FRANCISCO | REVIEW AND REJECTION OF THE FINAL TECHNICAL MEMORANDUM FOR TOTAL PETROLEUM HYDROCARBONS | ADMIN RECORD | SOIL | 012 | FRC - LAGUNA NIGEL |
| NONE | 11-16-1999 | C. MAXWELL | | INFO REPOSITORY | TECH MEMO | | 181-03-0181 |
| LTR | NONE | EFA WEST SAN BRUNO | | | TPH | | 2 OF 27 |
| NONE | 10.1 | E. GALANG | | | | | 41106473 |
| 00002 | | | | | | | |
| N60028 / 000055 | 12-22-1999 | TREASURE ISLAND RAB | RESTORATION ADVISORY BOARD (RAB) MEETING TRANSCRIPTS (MEETING NO. 61) - 16 NOVEMBER 1999 | ADMIN RECORD | GW | 012 | FRC - LAGUNA NIGEL |
| NONE | 11-16-1999 | | | INFO REPOSITORY | MTG MINS | | 181-03-0181 |
| MM | NONE | PUBLIC INTEREST | | | PCB | | 2 OF 27 |
| NONE | 10.4 | | | | PRG | | |
| 00023 | | | | | RAB | | 41106473 |
| | | | | | TPH | | |
| N60028 / 000051 | 12-06-1999 | EFA WEST SAN BRUNO | TECHNICAL MEMORANDUM, SOIL SAMPLING RESULTS FROM ADDITIONAL CHARACTERIZATION OF METALS, DIOXINS AND LANDFILL GAS AT DEBRIS DISPOSAL AREA A | ADMIN RECORD | GW | 012 | FRC - LAGUNA NIGEL |
| NONE | 11-19-1999 | E. GALANG | | INFO REPOSITORY | LF | | 181-03-0181 |
| RPT | 00242 | VARIOUS AGENCIES | | | METALS | | 2 OF 27 |
| N62474-94-D-7609 | 01.1 | | | | SOIL | | |
| 00040 | | | | | TECH MEMO | | 41106473 |
| | | | | | UST | | |
| | | | | | VOC | | |
| N60028 / 000052 | 12-06-1999 | EFA WEST SAN BRUNO | DRAFT - FIELD SAMPLING PLAN ADDENDUM FOR ADDITIONAL INVESTIGATION IN THE VICINITY OF BUILDINGS 1205/1207, 1244, 1251/1253, DEBRIS DISPOSAL AREAS C AND D | ADMIN RECORD | FSP | 012 | FRC - LAGUNA NIGEL |
| NONE | 11-22-1999 | E. GALANG | | INFO REPOSITORY | PRG | | 181-03-0181 |
| PLAN | 00314 | VARIOUS AGENCIES | | | SOIL | | 2 OF 27 |
| N62474-94-D-7609 | 03.1 | | | | SVOC | | |
| 00028 | | | | | TPH | | 41106473 |
| | | | | | VOC | | |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | Record Type | Record Date | Author | Recipient Affil. | Subject | Classification | Keywords | Sites | Location FRC Access. No. FRC/SWDIV Box No. FRC Warehouse Loc. CD No. |
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| N60028 / 000057 | | 12-23-1999 | CRWQCB - SAN FRANCISCO | NONE | 11-23-1999 | C. MAXWELL | | WATER QUALITY ISSUES | ADMIN RECORD INFO REPOSITORY | GW MONITORING PCB SVOCS TPH VOCS WATER WELLS | 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 000072 | | 12-23-1999 | CRWQCB - SAN FRANCISCO | NONE | 12-01-1999 | C. MAXWELL | | COMMENTS ON DRAFT FIELD SAMPLING PLAN FOR ADDITIONAL INVESTIGATION IN THE VICINITY OF BUILDINGS 1205/1207, 1244, 1251/1253 AND DEBRIS DISPOSAL AREAS C AND D | ADMIN RECORD INFO REPOSITORY | COMMENTS FSP PCB | 012 AREA C AREA D BLDG. 1205 BLDG. 1207 BLDG. 1244 BLDG. 1251 BLDG. 1253 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 000062 | | 12-23-1999 | NAVFAC - SOUTHWEST DIVISION | NONE | 12-08-1999 | E. GALANG | | FINAL - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) MEETING MINUTES - 01 NOVEMBER 1999 | ADMIN RECORD INFO REPOSITORY | MTG MINS | 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 000063 | | 12-23-1999 | NAVFAC - SOUTHWEST DIVISION | NONE | 12-08-1999 | E. GALANG | | MONTHLY STATUS REPORT FOR NOVEMBER 1999 | ADMIN RECORD INFO REPOSITORY | GW SOIL TPH | 006 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |

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| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000064 | 12-23-1999 | NAVFAC - | FINAL - RESTORATION ADVISORY BOARD | ADMIN RECORD | MTG MINS | 005 | FRC - LAGUNA |
| NONE | 12-08-1999 | SOUTHWEST | MEETING MINUTES - 19 OCTOBER 1999 | INFO | RAB | 012 | NIGEL |
| MM | NONE | DIVISION | | REPOSITORY | | 021 | 181-03-0181 |
| NONE | 10.4 | E. GALANG | | | | 024 | 2 OF 27 |
| 00011 | | VARIOUS | | | | | 41106473 |
| | | AGENCIES | | | | | |
| N60028 / 000077 | 12-23-1999 | NAVFAC - | DRAFT - RESTORATION ADVISORY BOARD | ADMIN RECORD | MTG MINS | 012 | FRC - LAGUNA |
| NONE | 12-10-1999 | SOUTHWEST | (RAB) MEETING MINUTES - 16 NOVEMBER | INFO | PCB | 021 | NIGEL |
| MM | NONE | DIVISION | 1999 AND AGENDA AND HANDOUTS FOR | REPOSITORY | RAB | | 181-03-0181 |
| NONE | 10.1 | E. GALANG | THE DECEMBER 14, 1999 RAB MEETING | | SOIL | | 2 OF 27 |
| 00018 | | VARIOUS | | | TPH | | 41106473 |
| | | AGENCIES | | | VOCS | | |
| N60028 / 001101 | 02-18-2000 | MARY | RESTORATION ADVISORY BOARD (RAB) | ADMIN RECORD | FOSL | 012 | FRC - LAGUNA |
| NONE | 12-14-1999 | HILLABRAND, INC. | MEETING TRANSCRIPT OF 14 DECEMBER | INFO | MTG MINS | BLDG. 1205 | NIGEL |
| MM | NONE | | 1999 (MEETING NO. 62) | REPOSITORY | PCB | BLDG. 1207 | 181-03-0181 |
| NONE | | NAVFAC - | | | RAB | BLDG. 1209 | 27 OF 27 |
| 00054 | | WESTERN | | | SVOC | BLDG. 1231 | 41106473 |
| | | DIVISION | | | TPH | BLDG. 1233 | |
| | | | | | | BLDG. 1244 | |
| | | | | | | BLDG. 1251 | |
| | | | | | | BLDG. 1253 | |
| | | | | | | BLDG. 1307 | |
| | | | | | | BLDG. 1309 | |
| | | | | | | BLDG. 1311 | |
| | | | | | | BLDG. 9 | |
| | | | | | | UST IG | |

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| | | | | | | | CD No. |
| N60028 / 000068 NONE PLAN NONE 00007 | 12-23-1999 12-15-1999 NONE 03.3 | NAVFAC - SOUTHWEST DIVISION E. GALANG VARIOUS AGENCIES | FIELD SAMPLING PLAN ADDENDUM THREE, FORMER STORAGE YARD | ADMIN RECORD INFO REPOSITORY | FSP PCB SOIL SVOCS | 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 000069 NONE PLAN N62474-94-D-7609 00030 | 12-23-1999 12-15-1999 00314 03.3 | NAVFAC - SOUTHWEST DIVISION E. GALANG VARIOUS AGENCIES | FIELD SAMPLING PLAN ADDENDUM FOR INVESTIGATION OF THE ELEMENTARY SCHOOL AREA | ADMIN RECORD INFO REPOSITORY | AOC FSP SOIL SVOCS | 012 | FRC - LAGUNA NIGEL 181-03-0181 2 OF 27 41106473 |
| N60028 / 001100 NONE LTR NONE 00004 | 02-15-2000 12-17-1999 NONE | NAVFAC - WESTERN DIVISION E. GALANG DTSC, BERKELEY, CA D. RIST | REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) SUMMARY REPORT OF THE TIME-CRITICAL REMOVAL ACTION (TCRA) OF LEAD-CONTAMINATED SOIL. (WITH ENCLOSURE) | ADMIN RECORD INFO REPOSITORY | FS LEAD RI SOIL TCRA | 012 BLDG. 1207 BLDG. 1209 | FRC - LAGUNA NIGEL 181-03-0181 27 OF 27 41106473 |
| N60028 / 001099 NONE LTR NONE 00002 | 02-15-2000 12-20-1999 NONE | CRWQCB, OAKLAND, CA C. MAXWELL NAVFAC - WESTERN DIVISION E. GALANG | COMMENTS ON THE SCOPE OF WORK - REGARDING ADDITIONAL SAMPLING LOCATIONS FOR THE FORMER STORAGE YARD. | ADMIN RECORD INFO REPOSITORY | COMMENTS PCB PRG SAMPLING SVOC | 012 | FRC - LAGUNA NIGEL 181-03-0181 27 OF 27 41106473 |

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| N60028 / 001096 NONE RPT N62474-93-D-2151 00130 | 02-15-2000 01-01-2000 DO140 | IT CORPORATION NAVFAC - SOUTHWEST DIVISION | POST-CONSTRUCTION, TIME-CRITICAL REMOVAL OF LEAD-CONTAMINATED SOIL | ADMIN RECORD INFO REPOSITORY | LEAD PCB PVC SOIL TCRA | 012 BLDG. 1123 BLDG. 1133 | FRC - LAGUNA NIGEL 181-03-0181 27 OF 27 41106473 |
| N60028 / 001115 NONE PLAN N62474-94-D-7609 00020 | 03-31-2000 01-14-2000 00314 | TETRA TECH EM INC. A. WICKE VARIOUS | FINAL - FIELD SAMPLING PLAN ADDENDUM FOR ADDITIONAL INVESTIGATION OF DEBRIS DISPOSAL AREAS A AND B | ADMIN RECORD | MTBE PCB SVOC TPH UST | 012 BLDG. 1121 BLDG. 1123 BLDG. 1125 BLDG. 1131 BLDG. 1321 | FRC - LAGUNA NIGEL 181-03-0181 27 OF 27 41106473 |
| N60028 / 001097 NONE LTR NONE 00003 | 02-15-2000 01-20-2000 NONE | CRWQCB, OAKLAND, CA C. MAXWELL NAVFAC - WESTERN DIVISION E. GALANG | COMMENTS REGARDING PILOT PHASE FIELD SAMPLING PLAN FOR POTENTIAL DEBRIS DISPOSAL AREAS, DATED NOVEMBER 19, 1999 | ADMIN RECORD INFO REPOSITORY | COMMENTS FSP PCB SVOC | 012 | FRC - LAGUNA NIGEL 181-03-0181 27 OF 27 41106473 |

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| N60028 / 001107 | 03-31-2000 | NAVFAC - | REMEDIAL PROJECT MANAGER AND BRAC | ADMIN RECORD | FFSRA | 001 | FRC - LAGUNA |
| SWDIV SER | 02-03-2000 | SOUTHWEST | CLEANUP TEAM (RPM/BCT) MEETING | | RAP | 003 | NIGEL |
| 6225EG/L0034-3 | NONE | DIVISION | MINUTES - 14 DECEMBER 1999: FINAL - | | ROD | 004 | 181-03-0181 |
| MM | | E. GALANG | STRATEGIC PLANNING SESSION 1 | | | 005 | 27 OF 27 |
| NONE | | VARIOUS | (INCLUDES 4 ATTACHMENTS: AGENDA, | | | 006 | |
| 00030 | | | SIGN-IN SHEET, VARIOUS HANDOUTS) | | | 006B | 41106473 |
| | | | | | | 007 | |
| | | | | | | 008 | |
| | | | | | | 009 | |
| | | | | | | 009B | |
| | | | | | | 010 | |
| | | | | | | 011 | |
| | | | | | | 011B | |
| | | | | | | 012 | |
| | | | | | | 012B | |
| | | | | | | 013 | |
| | | | | | | 014 | |
| | | | | | | 014B | |
| | | | | | | 015 | |
| | | | | | | 015B | |
| | | | | | | 016 | |
| | | | | | | 017 | |
| | | | | | | 017A | |
| | | | | | | 019 | |
| | | | | | | 020 | |
| | | | | | | 020B | |
| | | | | | | 021 | |
| | | | | | | 021B | |
| | | | | | | 021C | |
| | | | | | | 022 | |
| | | | | | | 022B | |
| | | | | | | 024 | |
| | | | | | | 024B | |
| | | | | | | 025 | |
| | | | | | | 025B | |

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| | | | | | | 027 | | |
| | | | | | | 028 | | |
| | | | | | | 029 | | |
| | | | | | | A | | |
| | | | | | | BLDG. 1133 | | |
| | | | | | | BLDG. 1205 | | |
| | | | | | | BLDG. 1207 | | |
| | | | | | | BLDG. 1209 | | |
| | | | | | | BLDG. 1231 | | |
| | | | | | | BLDG. 1232 | | |
| | | | | | | BLDG. 1233 | | |
| | | | | | | BLDG. 1244 | | |
| | | | | | | BLDG. 1251 | | |
| | | | | | | BLDG. 1253 | | |
| N60028 / 001108 | 03-31-2000 | NAVFAC - | REMEDIAL PROJECT MANAGER AND BRAC | ADMIN RECORD | FFSRA | 012 | FRC - LAGUNA | |
| SWDIV SER | 02-03-2000 | SOUTHWEST | CLEANUP TEAM (RPM/BCT) MEETING | | FOSL | BLDG. 1131 | NIGEL | |
| 6225EG/L0034-1 | NONE | DIVISION | MINUTES - 08 SEPTEMBER 1999: DEBRIS | | | BLDG. 1133 | 181-03-0181 | |
| MM | | E. GALANG | DISPOSAL AREAS (INCLUDES AGENDA AND | | | BLDG. 1135 | 27 OF 27 | |
| NONE | | VARIOUS | SIGN-IN SHEET) | | | BLDG. 1207 | | |
| 00015 | | | | | | BLDG. 1209 | 41106473 | |
| | | | | | | BLDG. 1231 | | |
| | | | | | | BLDG. 1233 | | |
| | | | | | | BLDG. 125 | | |
| N60028 / 001109 | 03-31-2000 | NAVFAC - | MEETING MINUTES OF 5 OCTOBER 1999: | ADMIN RECORD | | 012 | FRC - LAGUNA | |
| SWDIV SER | 02-03-2000 | SOUTHWEST | FIELD SAMPLING AND ANALYSIS PLAN FOR | | | BLDG. 1236 | NIGEL | |
| 6225EG/L0034-1 | NONE | DIVISION | POTENTIAL DEBRIS AREAS (INCLUDES 4 | | | | 181-03-0181 | |
| MM | | E. GALANG | ATTACHMENTS: AGENDA, SIGN-IN SHEET | | | | 27 OF 27 | |
| NONE | | VARIOUS | AND VARIOUS HANDOUTS) | | | | | |
| 00025 | | | | | | | 41106473 | |

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| N60028 / 001110 | 03-31-2000 | NAVFAC - | REMEDIAL PROJECT MANAGER AND BRAC | ADMIN RECORD | TPH | 001 | FRC - LAGUNA |
| SWDIV SER | 02-03-2000 | SOUTHWEST | CLEANUP TEAM (RPM/BCT) MEETING | | UST | 003 | NIGEL |
| 6225EG/L0034-1 | NONE | DIVISION | MINUTES - 06 DECEMBER 1999: REMEDIAL | | | 006 | 181-03-0181 |
| MM | | E. GALANG | INVESTIGATION AND FEASIBILITY STUDY | | | 011 | 27 OF 27 |
| NONE | | VARIOUS | (INCLUDES 3 ATTACHMENTS: AGENDA, | | | 012 | |
| 00025 | | | SIGN-IN SHEET AND VARIOUS HANDOUTS) | | | 028 | 41106473 |
| | | | | | | 029 | |
| | | | | | | BLDG. 1133 | |
| | | | | | | BLDG. 1205 | |
| | | | | | | BLDG. 1207 | |
| | | | | | | BLDG. 1209 | |
| | | | | | | BLDG. 1231 | |
| | | | | | | BLDG. 1232 | |
| | | | | | | BLDG. 1233 | |
| | | | | | | BLDG. 1244 | |
| | | | | | | BLDG. 1251 | |
| | | | | | | BLDG. 1253 | |
| N60028 / 001111 | 03-31-2000 | NAVFAC - | REMEDIAL INVESTIGATION/FEASIBILITY | ADMIN RECORD | PCB | 012 | FRC - LAGUNA |
| SWDIV SER | 02-08-2000 | SOUTHWEST | STUDY (RI/FS) SUMMARY OF RESULTS | | SVOC | BLDG. 1205 | NIGEL |
| 6225EG/L0039-3 | NONE | DIVISION | FROM THE INVESTIGATION | | TPH-MO | BLDG. 1207 | 181-03-0181 |
| LTR | | E. GALANG | | | VOC | BLDG. 1244 | 27 OF 27 |
| NONE | | DTSC, BERKELEY, | | | | BLDG. 1246 | |
| 00015 | | CA | | | | BLDG. 1251 | 41106473 |
| | | D. RIST | | | | BLDG. 1253 | |
| N60028 / 001112 | 03-31-2000 | NAVFAC - | REMEDIAL INVESTIGATION/FEASIBILITY | ADMIN RECORD | TPH | 012 | FRC - LAGUNA |
| SWDIV SER | 02-08-2000 | SOUTHWEST | STUDY (RI/FS) SUMMARY OF RESULTS | | | BLDG. 1202 | NIGEL |
| 6225EG/L0039-1 | NONE | DIVISION | FROM THE INVESTIGATION | | | BLDG. 1217 | 181-03-0181 |
| LTR | | E. GALANG | | | | BLDG. 1228 | 27 OF 27 |
| NONE | | DTSC, BERKELEY, | | | | BLDG. 1230 | |
| 00015 | | CA | | | | | 41106473 |
| | | D. RIST | | | | | |

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| N60028 / 001113 | 03-31-2000 | TETRA TECH EM | DRAFT - FIELD SAMPLING PLAN FOR | ADMIN RECORD | MEE | 001 | | FRC - LAGUNA |
| NONE | 02-10-2000 | INC. | FACILITY-WIDE GROUNDWATER | | PCB | 004 | | NIGEL |
| PLAN | 00284 | C. FREEMAN | MONITORING | | PVC | 006 | | 181-03-0181 |
| N62474-94-D-7609 | | VARIOUS | | | QAPP | 007 | | 27 OF 27 |
| 00000 | | | | | SVOC | 009 | | |
| | | | | | TPH | 010 | | 41106473 |
| | | | | | TPH-E | 011 | | |
| | | | | | TPH-P | 012 | | |
| | | | | | UST | 014 | | |
| | | | | | VOC | 015 | | |
| | | | | | | 017 | | |
| | | | | | | 019 | | |
| | | | | | | 020 | | |
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| | | | | | | 022 | | |
| | | | | | | 024 | | |
| | | | | | | 025 | | |

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| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
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| N60028 / 001114 | 03-31-2000 | NAVFAC - | DRAFT - QUALITY ASSURANCE PROJECT | ADMIN RECORD | DCE | 004 | | FRC - LAGUNA |
| NONE | 02-10-2000 | SOUTHWEST | PLAN FOR FACILITYWIDE GROUNDWATER | | FE2 | 005 | | NIGEL |
| PLAN | 00284 | DIVISION | MONITORING {SEE AR #647 - FINAL | | PCB | 006 | | 181-03-0181 |
| N62474-94-D-7609 | | C. FREEMAN | ADDENDUM} | | PCE | 009 | | 27 OF 27 |
| 00200 | | VARIOUS | | | SVOC | 011 | | |
| | | | | | TCE | 012 | | 41106473 |
| | | | | | TPH | 014 | | |
| | | | | | TPH-E | 015 | | |
| | | | | | TPH-P | 017 | | |
| | | | | | UST | 019 | | |
| | | | | | VOC | 020 | | |
| | | | | | | 021 | | |
| | | | | | | 022 | | |
| | | | | | | 024 | | |
| | | | | | | 025 | | |
| | | | | | | D4B | | |
| | | | | | | F2A | | |
| | | | | | | F2B | | |
| | | | | | | UST 180C | | |
| | | | | | | UST 201 | | |
| | | | | | | UST 227 | | |
| | | | | | | UST 368B | | |

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| N60028 / 001106 | 03-31-2000 | NAVFAC - | REMEDIAL PROJECT MANAGER AND BRAC | ADMIN RECORD | FOSL | 012 | | FRC - LAGUNA |
| NONE | 03-03-2000 | SOUTHWEST | CLEANUP TEAM (RPM/BCT) MEETING | | PA/SI | 025 | | NIGEL |
| MM | NONE | DIVISION | MINUTES - 11 JANUARY 2000: REMEDIAL | | PCB | 025-MW02 | | 181-03-0181 |
| NONE | | E. GALANG | INVESTIGATION/FEASIBILITY STUDY (RI/FS) | | QAPP | BLDG. 1108 | | 27 OF 27 |
| 00035 | | VARIOUS | (INCLUDES 4 ARRACHMENTS: AGENDA, SIGN-IN SHEET AND VARIOUS HANDOUTS) | | SVOC | BLDG. 1110 | | 41106473 |
| | | | SEE COMMENTS FOR SITE FIELD | | TPH | BLDG. 1205 | | |
| | | | INFORMATION | | UST | BLDG. 1207 | | |
| | | | | | | BLDG. 1244 | | |
| | | | | | | BLDG. 1251 | | |
| | | | | | | BLDG. 1253 | | |
| | | | | | | BLDG. 1307 | | |
| | | | | | | BLDG. 1309 | | |
| | | | | | | BLDG. 1311 | | |
| | | | | | | BLDG. 214 | | |
| | | | | | | UST 143 | | |
| | | | | | | UST 180C | | |
| | | | | | | UST 1A | | |
| | | | | | | UST 1E | | |
| | | | | | | UST 201 | | |
| | | | | | | UST 227 | | |
| | | | | | | UST 270 | | |
| | | | | | | UST 368A | | |

| UIC No. / Rec. No. | | | | | | | | Location |
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| Doc. Control No. | Prc. Date | Author Affil. | | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 001103 | 03-31-2000 | CRWQCB, | COMMENTS ON DRAFT FIELD SAMPLINE | ADMIN RECORD | GW | 001 | | FRC - LAGUNA |
| FILE NO. 2169.6013 | 03-10-2000 | OAKLAND, CA | PLAN AND DRAFT QUALITY ASSURANCE | INFO | MTBE | 005 | | NIGEL |
| (CRM) | NONE | C. MAXWELL | PROJECT PLAN FOR FACILITY-WIDE | REPOSITORY | PCB | 006 | | 181-03-0181 |
| LTR | | NAVFAC - | GROUNDWATER MONITORING (SEE | | QAPP | 012 | | 27 OF 27 |
| NONE | | SOUTHWEST | COMMENTS REGARDING SITE FIELD) | | SVOC | 014 | | |
| 00006 | | DIVISION | | | TPH-D | 015 | | 41106473 |
| | | | | | TPH-G | 017 | | |
| | | | | | TPH-MO | 017-MW01 | | |
| | | | | | UST | 022 | | |
| | | | | | VOC | 024-MW03 | | |
| | | | | | | 025 | | |
| | | | | | | MW 20 | | |
| | | | | | | MW 21 | | |
| | | | | | | MW 22 | | |
| | | | | | | MW 23 | | |
| | | | | | | MW 24 | | |
| | | | | | | MW 3 | | |
| | | | | | | MW 5 | | |
| | | | | | | MW 6 | | |
| | | | | | | MW 7 | | |

| UIC No. / Rec. No. | | | | | | | | Location |
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| Doc. Control No. | Prc. Date | Author Affil. | | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 001117 | 05-01-2000 | TETRA TECH EM | RESPONSE TO COMMENTS ON THE DRAFT | ADMIN RECORD | COMMENTS | 001 | | FRC - LAGUNA |
| NONE | 03-28-2000 | INC. | FIELD SAMPLING PLAN AND DRAFT | | PCB | 001-MW01* | | NIGEL |
| MM | 00284 | C. FREEMAN | QUALITY ASSURANCE PROJECT PLAN FOR | | QAPP | 005 | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | THE FACILITYWIDE GROUNDWATER | | RESPONSE | 006 | | 27 OF 27 |
| 00025 | | SOUTHWEST | MONITORING PROGRAM (*SEE COMMENT | | SVOC | 011 | | 41106473 |
| | | DIVISION | FIELD BELOW) | | TPH-D | 012 | | |
| | | | | | TPH-E | 014 | | |
| | | | | | TPH-G | 015 | | |
| | | | | | TPH-MO | 017 | | |
| | | | | | TPH-P | 017-MW01* | | |
| | | | | | UST | 022 | | |
| | | | | | VOC | 024 | | |
| | | | | | | 024-MW03* | | |
| | | | | | | 025 | | |
| | | | | | | MW 20* | | |
| | | | | | | MW 21* | | |
| | | | | | | MW 22* | | |
| | | | | | | MW 23* | | |
| | | | | | | MW 24* | | |
| | | | | | | MW 3* | | |
| | | | | | | MW 5* | | |
| | | | | | | MW 6* | | |
| | | | | | | MW 7* | | |

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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001119 | 05-03-2000 | NAVFAC - | TRANSMITTAL OF REMEDIAL PROJECT | ADMIN RECORD | FFSRA | 001 | FRC - LAGUNA |
| SWDIV SER | 03-28-2000 | SOUTHWEST | MANAGER (RPM)/BRAC CLOSURE TEAM | | MTBE | 003 | NIGEL |
| 6225EG/L0088-1 | NONE | DIVISION | (BCT) MEETING MINUTES OF 1 FEBRUARY | | PAH | 004 | 181-03-0186 |
| MM | | E. GALANG | AND 8 FEBRUARY 2000 RE: REMEDIAL | | QAPP | 005 | 3 OF 6 |
| NONE | | VARIOUS | INVESTIGATION/FEASIBILITY STUDY (RI/FS) | | SVOC | 006 | |
| 00040 | | | (W/ENCLOSURES) (*SEE COMMENT FIELD | | TPH | 007 | 41031802 |
| | | | BELOW) | | TPH-D | 008 | |
| | | | | | TPH-E | 009 | |
| | | | | | TPH-G | 010 | |
| | | | | | TPH-MO | 011 | |
| | | | | | VOC | 012 | |
| | | | | | | 013 | |
| | | | | | | 014 | |
| | | | | | | 015 | |
| | | | | | | 016 | |
| | | | | | | 017 | |
| | | | | | | 019 | |
| | | | | | | 020 | |
| | | | | | | 021 | |
| | | | | | | 022 | |
| | | | | | | 024 | |
| | | | | | | 025 | |
| | | | | | | 025-MW02* | |
| | | | | | | 025-MW04* | |
| | | | | | | 027 | |
| | | | | | | 028 | |
| | | | | | | 029 | |
| | | | | | | 143-MW1* | |
| | | | | | | 143-MW2* | |
| | | | | | | BLDG. 1127 | |
| | | | | | | BLDG. 1207 | |
| | | | | | | BLDG. 1313 | |
| | | | | | | BLDG. 1315 | |
| | | | | | | BLDG. 1317 | |
| | | | | | | BLDG. 1321 | |

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| Approx. # Pages | EPA Cat. # | Recipient | | | | | | CD No. |
| | | | | | | | BLDG. 1323 BLDG. 1325 UST 227 UST 270 | |
| N60028 / 001118 SWDIV SER 06CA.JS/0275 RPT N62474-94-D-7609 00200 | 05-01-2000 04-10-2000 00242 | TETRA TECH EM INC. V. PRILEPIN VARIOUS | | ADDITIOANL INVESTIGATION OF NORTH POINT AND MASON COURT AREAS AND DEBRIS DISPOSAL AREA B | ADMIN RECORD | PCB SVOC TCDD TPH TPH-D TPH-G TPH-MO VOC YST | 012 | FRC - LAGUNA NIGEL 181-03-0186 2 OF 6 41031802 |
| N60028 / 001116 NONE MM NONE 00020 | 05-01-2000 04-18-2000 NONE | NAVFAC - SOUTHWEST DIVISION NAVFAC - SOUTHWEST DIVISION | | RESTORATION ADVISORY BOARD (RAB) MEETING AGENDA FOR 18 APRIL 2000 (MEETING NO. 66) AND MEETING MINUTES, AGENDA AND HANDOUTS OF 21 MARCH 2000 (MEETING NO. 65) | ADMIN RECORD | FFSRA FOSL MINUTES PAH PCB RAB UST | 011 012 AREA A AREA B BLDG. 1205 BLDG. 1207 BLDG. 1209 BLDG. 1231 BLDG. 1233 UST 270 | FRC - LAGUNA NIGEL 181-03-0181 27 OF 27 41106473 |
| N60028 / 000088 NONE MM NONE 00011 | 08-30-2000 05-16-2000 NONE | NAVFAC - SOUTHWEST DIVISION NAVFAC - SOUTHWEST DIVISION | | RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES - 18 APRIL 2000 (MEETING NO. 66) | ADMIN RECORD INFO REPOSITORY | FOST MTG MINS PCB RAB RI | 012 013 027 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | Record Type | Record Date | Author | Recipient Affil. | Subject | Classification | Keywords | Sites | Location FRC Access. No. FRC/SWDIV Box No. FRC Warehouse Loc. CD No. |
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| Contr./Guid. No. | CTO No. | EPA Cat. # | Recipient | Approx. # Pages | | | | | | | | |
| N60028 / 000109 | | 11-08-2000 | MARY HILLABRAND, INC. | NONE | | | | RESTORATION ADVISORY BOARD (RAB) MEETING TRANSCRIPT OF 16 MAY 2000 (MEETING NO. 67) | ADMIN RECORD | GW | 011 | FRC - LAGUNA NIGEL |
| | | 05-16-2000 | S. BALBONI | | | | | | INFO | METALS | 012 | 181-03-0181 |
| MM | | NONE | NAVFAC - SOUTHWEST DIVISION | | | | | | REPOSITORY | PAH | 013 | 3 OF 27 |
| NONE | | | | | | | | | | PCB | 021 | |
| 00070 | | | | | | | | | | PESTICIDES | 027 | 41106473 |
| | | | | | | | | | | RAB | | |
| | | | | | | | | | | REMOVAL | | |
| | | | | | | | | | | SVOC | | |
| | | | | | | | | | | TPH | | |
| | | | | | | | | | | VOC | | |
| | | | | | | | | | | WELLS | | |
| N60028 / 001120 | | 06-16-2000 | TETRA TECH EM INC. | NONE | | | | FINAL - FIELD SAMPLING PLAN SOIL GAS INVESTIGATION | ADMIN RECORD | QAPP | 012 | FRC - LAGUNA NIGEL |
| | | 06-02-2000 | J. WICKHAM | | | | | | | VOC | | 181-03-0186 |
| RPT | | 00369 | NAVFAC - SOUTHWEST DIVISION | | | | | | | | | 3 OF 6 |
| N62474-94-D-7609 | | | | | | | | | | | | 41031802 |
| 00040 | | | | | | | | | | | | |
| N60028 / 001121 | | 06-16-2000 | TETRA TECH EM INC. | NONE | | | | FINAL - QUALITY ASSURANCE PROJECT PLAN (QAPP) ADDENDUM SOIL GAS INVESTIGATION | ADMIN RECORD | | 012 | FRC - LAGUNA NIGEL |
| | | 06-02-2000 | A. WICKE | | | | | | | | | 181-03-0186 |
| RPT | | 00369 | NAVFAC - SOUTHWEST DIVISION | | | | | | | | | 3 OF 6 |
| N62474-94-D-7609 | | | | | | | | | | | | 41031802 |
| 00025 | | | | | | | | | | | | |
| N60028 / 000105 | | 11-08-2000 | MARY HILLABRAND, INC. | NONE | | | | RESTORATION ADVISORY BOARD (RAB) MEETING TRANSCRIPT OF 20 JUNE 2000 (MEETING NO. 68) | ADMIN RECORD | MTG MINS | 012 | FRC - LAGUNA NIGEL |
| | | 06-20-2000 | S. BALBONI | | | | | | INFO | PAH | BLDG. 1107 | 181-03-0181 |
| MM | | NONE | NAVFAC - SOUTHWEST DIVISION | | | | | | REPOSITORY | PCB | BLDG. 1108 | 3 OF 27 |
| NONE | | | | | | | | | | RAB | BLDG. 1110 | |
| 00080 | | | | | | | | | | REMOVAL | BLDG. 1124 | 41106473 |
| | | | | | | | | | | RI | | |
| | | | | | | | | | | SOIL | | |

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| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001122 | 06-21-2000 | TETRA TECH EM | RESTORATION ADVISORY BOARD (RAB) | ADMIN RECORD | PCB | 011 | FRC - LAGUNA |
| NONE | 06-20-2000 | INC. | AGENDA FOR MEETING NO. 68 SCHEDULED | | SVOC | 012 | NIGEL |
| MM | NONE | | FOR 20 JUNE 2000 AND RAB MEETING | | TPH | 013 | 181-03-0186 |
| NONE | | NAVFAC - | MINUTES OF 16 MAY 2000 (MEETING NO. | | VOC | 021 | 3 OF 6 |
| 00020 | | SOUTHWEST | 67) - (INCLUDES AGENDA, SIGN-IN SHEETS | | | 027 | |
| | | DIVISION | AND HANDOUTS) | | | BLDG. 1133 | 41031802 |
| | | | | | | BLDG. 1207 | |
| | | | | | | BLDG. 1209 | |
| N60028 / 000650 | 01-08-2002 | IT CORPORATION | FINAL PROJECT PLANS - WORK PLAN, | ADMIN RECORD | H&SP | 012 | FRC - LAGUNA |
| 802287-ITNHO-1010 | 06-30-2000 | J. BAUR | QUALITY CONTROL PLAN, SAMPLING & | INFO | PAH | | NIGEL |
| 2 & SWDIV SER | 00006 | NAVFAC - | ANALYSIS PLAN ADDENDUM, SITE HEALTH | REPOSITORY | PCB | | 181-03-0181 |
| 06CA.JS/0536 | | SOUTHWEST | & SAFETY PLAN - FORMER STORAGE YARD | | PVC | | 16 OF 27 |
| PLAN | | DIVISION | REMOVAL ACTION OF PCB CONTAMINATED | | REMOVAL ACTIO | | |
| N62474-98-D-2076 | | J. SULLIVAN | SOIL, HALYBURTON COURT AREA, | | SAP | | 41106473 |
| 00280 | | | REVISION 0 | | SOIL | | |
| | | | | | SVOC | | |
| | | | | | TPH | | |
| | | | | | VOC | | |
| | | | | | WORK PLAN | | |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001123 | 07-18-2000 | NAVFAC - | RESPONSE TO COMMENTS ON THE PHASE | ADMIN RECORD | TPH | 006 | FRC - LAGUNA |
| SWDIV SER | 06-30-2000 | SOUTHWEST | 2 SAMPLING FOR THE CORRECTIVE | | | 012 | NIGEL |
| 06CA.ED/0504 | NONE | DIVISION | ACTION PLAN | | | 014 | 181-03-0186 |
| LTR | | E. CASADOS | | | | 020 | 3 OF 6 |
| NONE | | VARIOUS | | | | 022 | 41031802 |
| 00015 | | | | | | BLDG. 225 | |
| | | | | | | BLDG. 461 | |
| | | | | | | WELL 06-MW | |
| | | | | | | WELL 06-MW | |
| | | | | | | WELL 06-MW | |
| | | | | | | WELL 06-MW | |
| | | | | | | WELL 06-MW | |
| | | | | | | WELL 06-MW | |
| | | | | | | WELL 06-MW: | |
| | | | | | | WELL 06-MW: | |
| | | | | | | WELL 12-MW | |
| | | | | | | WELL 143-MW | |
| | | | | | | WELL 14-MW | |
| | | | | | | WELL 22-MW | |
| | | | | | | WELL 22-MW | |
| N60028 / 000078 | 08-11-2000 | TETRA TECH EM | FINAL CONSTRUCTION OVERSIGHT WORK | ADMIN RECORD | BAP | 012 | FRC - LAGUNA |
| NONE | 07-05-2000 | INC. | PLAN FOR THE REMOVAL OF | INFO | PAH | | NIGEL |
| PLAN | 00323 | | POLYCHLORINATED BIPHENYL (PCB) - | REPOSITORY | PCB | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | CONTAMINATED SOIL AT THE FORMER | | RI | | 2 OF 27 |
| 00050 | | SOUTHWEST | STORAGE YARD AREA OF CONCERN | | SOIL | | |
| | | DIVISION | INCLUDES TRANSMITTAL LETTER DATED | | | | 41106473 |
| | | | JULY 26, 2000 | | | | |

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| Record Type | CTO No. | Recipient Affil. | | | | FRC/SWDIV Box No. | |
| Contr./Guid. No. | EPA Cat. # | Recipient | Subject | Classification | Keywords | FRC Warehouse Loc. | |
| Approx. # Pages | | | | | | Sites | CD No. |
| N60028 / 000086 SWDIV SER 06CA.JS/0533 MM NONE 00100 | 07-18-2000 07-07-2000 NONE | NAVFAC - SOUTHWEST DIVISION J. SULLIVAN VARIOUS | TRANSMITTAL OF SITE 12 PROJECT TEAM MEETING MINUTES OF 2/24/00; REMEDIAL PROJECT MANAGERS MEETING MINUTES OF 3/9/00; BCT MEETING MINUTES OF 3/14/00; SITE 12 PLANNING MEETING MINUTES OF 3/28/00; AND BCT MEETING MINUTES OF 4/11/00 (W/ENCLOSURES) | ADMIN RECORD | MTG MINS | 012 BLDG. 1103 BLDG. 1106 BLDG. 1205 BLDG. 1207 BLDG. 1209 BLDG. 1211 BLDG. 1213 BLDG. 1224 BLDG. 1231 BLDG. 1233 WELL 12MW- | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |
| N60028 / 000106 NONE MM NONE 00100 | 11-08-2000 07-18-2000 NONE | MARY HILLABRAND, INC. S. BALBONI NAVFAC - SOUTHWEST DIVISION | RESTORATION ADVISORY BOARD (RAB) MEETING TRANSCRIPT OF 18 JULY 2000 (MEETING NO. 69) - INCLUDES DISKETTE | ADMIN RECORD INFO REPOSITORY | LANDFILL MONITORING PCB RAB RI SOIL WELLS | 012 BLDG. 1207 BLDG. 1209 BLDG. 1231 BLDG. 1233 BLDG. 1319 BLDG. 1321 BLDG. 1323 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |
| N60028 / 000115 TC.0308.10711 MM N62474-94-D-7609 00040 | 12-19-2000 08-08-2000 00308 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) MEETING MINUTES - 08 AUGUST 2000 - INCLUDES SIGN-IN SHEET, AGENDA, FIGURES, SAMPLES, AOC'S FROM BRAC HISTORICAL STUDY, SUMMARY OF UPCOMING DOCUMENTS | ADMIN RECORD INFO REPOSITORY | FOSL MTG MINS PCB | 008 010 012 028 BLDG. 1105 BLDG. 1107 PARCEL 1 PARCEL 3 PARCEL 4 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |

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| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000153 TC.0308.10899 & SWDIV SER 06CA.JS/0455 MM N62474-94-D-7609 00025 | 05-04-2001 08-08-2000 00308 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | FINAL - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) MEETING MINUTES - 08 AUGUST 2000 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | AOC BCT BRAC FOSL MTG PCB RAB RPM TPH | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 |
| N60028 / 001140 SWDIV SER 06CA.EC\0748 LTR NONE 00006 | 12-17-2002 09-18-2000 NONE | NAVFAC - SOUTHWEST DIVISION M. BLOOM RWQCB - OAKLAND S. RAKER | RESPONSE TO WATER BOARD LETTER OF 3 NOVEMBER 1999 REGARDING PROTECTION OF THE SALTWATER AQUATIC BENEFICIAL USES OF SAN FRANCISCO BAY (SEE AR #31 - LETTER) | ADMIN RECORD | CAP GW PAH PESTICIDES RI WATER | 011 012 014 015 021 022 025 UST 227 | FRC - LAGUNA NIGEL 181-03-0186 3 OF 6 41031802 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 000117 | 12-19-2000 | TETRA TECH EM | DRAFT - REMEDIAL PROJECT MANAGER | ADMIN RECORD | FOSL | 003 | | FRC - LAGUNA |
| TC.0308.10712 | 10-03-2000 | INC. | | INFO | FOST | 004 | | NIGEL |
| MM | 00308 | | | REPOSITORY | GAS | 005 | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | | | GW | 006 | | 3 OF 27 |
| 00050 | | SOUTHWEST | | | MTG MINS | 007 | | |
| | | DIVISION | | | PAH | 008 | | 41106473 |
| | | | | | SOIL | 009 | | |
| | | | | | TPH | 010 | | |
| | | | | | VOC | 011 | | |
| | | | | | | 012 | | |
| | | | | | | 015 | | |
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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000097 | 10-16-2000 | TETRA TECH EM | FINAL FIELD SAMPLING PLAN ADDENDUM - | ADMIN RECORD | AIR | 012 | FRC - LAGUNA |
| DS.0369.15346 | 10-04-2000 | INC. | INDOOR AMBIENT AIR INVESTIGATION OF | INFO | AOC | BLDG. 1100 | NIGEL |
| PLAN | 00369 | J. WICKHAM | THE FORMER STORAGE YARD (SEE AR | REPOSITORY | ARAR | BLDG. 1103 | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | #98 - QAPP ADDENDUM) | | DQO | | 3 OF 27 |
| 00150 | | SOUTHWEST | | | FS | | 41106473 |
| | | DIVISION | | | FSP | | |
| | | | | | PAH | | |
| | | | | | PCB | | |
| | | | | | PRG | | |
| | | | | | QAPP | | |
| | | | | | QC | | |
| | | | | | RI | | |
| | | | | | SB | | |
| | | | | | SOIL | | |
| | | | | | SVOC | | |
| | | | | | TPH | | |
| | | | | | VOC | | |
| N60028 / 000098 | 10-16-2000 | TETRA TECH EM | FINAL QUALITY ASSURANCE PROJECT | ADMIN RECORD | AIR | 012 | FRC - LAGUNA |
| DS.0369.15350 | 10-04-2000 | INC. | PLAN ADDENDUM - INDOOR AMBIENT AIR | INFO | DQO | BLDG. 1100 | NIGEL |
| PLAN | 00369 | J. WICKHAM | INVESTIGATION OF THE FORMER | REPOSITORY | FSP | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | STORAGE YARD (SEE AR #97 - FINAL FIELD | | GC/MS | | 3 OF 27 |
| 00090 | | SOUTHWEST | SAMPLING PLAN ADDENDUM) | | PCB | | 41106473 |
| | | DIVISION | | | PRG | | |
| | | | | | QA | | |
| | | | | | QAPP | | |
| | | | | | QC | | |
| | | | | | SOIL | | |

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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000113 | 12-18-2000 | NAVFAC - | FINAL - REMEDIAL PROJECT MANAGER | ADMIN RECORD | FOST | 001 | FRC - LAGUNA |
| TC.0308.10622 & | 10-09-2000 | SOUTHWEST | AND BRAC CLEANUP TEAM (RPM/BCT) | INFO | MTG MINS | 003 | NIGEL |
| SWDIV SER | 00308 | DIVISION | MEETING MINUTES - 13 AND 14 JUNE 2000 - | REPOSITORY | PAH | 004 | 181-03-0181 |
| 06CA.JS | | J. SULLIVAN | INCLUDES AGENDA, SIGN-IN SHEET, | | PCB | 005 | 3 OF 27 |
| MM | | VARIOUS | SUMMARY OF SITES 13 & 27 AND | | TPH | 006 | |
| N62474-94-D-7609 | | | COMPILATION OF ACTION ITEMS (WITH | | VOC | 007 | 41106473 |
| 00030 | | | ATTACHMENTS) | | | 008 | |
| | | | | | | 009 | |
| | | | | | | 010 | |
| | | | | | | 011 | |
| | | | | | | 012 | |
| | | | | | | 013 | |
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| | | | | | | 024 | |
| | | | | | | 025 | |
| | | | | | | 027 | |
| | | | | | | 028 | |
| | | | | | | 029 | |
| N60028 / 000111 | 11-14-2000 | TETRA TECH EM | DRAFT FIELD SAMPLING PLAN, TIDAL | ADMIN RECORD | DQO | 012 | FRC - LAGUNA |
| DS.0370.15410 | 10-13-2000 | INC. | MIXING ZONE STUDY - BASEWIDE | INFO | FSP | | NIGEL |
| PLAN | 00370 | C. FREEMAN | GROUNDWATER TECHNICAL SUPPORT | REPOSITORY | GW | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | | | MONITORING | | 3 OF 27 |
| 00120 | | SOUTHWEST | | | PVC | | |
| | | DIVISION | | | WATER | | 41106473 |
| | | E. CASADOS | | | WELLS | | |

| UIC No. / Rec. No. | | | | | | | Location |
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| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000110 | 11-08-2000 | MARY | RESTORATION ADVISORY BOARD (RAB) | ADMIN RECORD | PCB | 001 | FRC - LAGUNA |
| NONE | 10-17-2000 | HILLABRAND, INC. | MEETING TRANSCRIPT OF 17 OCTOBER | INFO | RAB | 003 | NIGEL |
| MM | NONE | S. BALBONI | 2000 (MEETING NO. 71) | REPOSITORY | REMOVAL | 005 | 181-03-0181 |
| NONE | | NAVFAC - | | | RI | 007 | 3 OF 27 |
| 00120 | | SOUTHWEST | | | SOIL | 008 | 41106473 |
| | | DIVISION | | | | 009 | |
| | | | | | | 010 | |
| | | | | | | 011 | |
| | | | | | | 012 | |
| | | | | | | 017 | |
| | | | | | | 021 | |
| | | | | | | 029 | |
| | | | | | | BLDG. 1207 | |
| | | | | | | BLDG. 1209 | |
| | | | | | | BLDG. 1211 | |
| N60028 / 000099 | 11-02-2000 | TETRA TECH EM | DRAFT SOIL GAS INVESTIGATION RESULTS | ADMIN RECORD | BCT | 012 | FRC - LAGUNA |
| TC.0369.10620 | 10-30-2000 | INC. | AND PROPOSED STEP OUT SAMPLING | INFO | BRAC | | NIGEL |
| RPT | 00369 | J. WICKHAM | | REPOSITORY | IR | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | | | SITE | | 3 OF 27 |
| 00030 | | SOUTHWEST | | | SOIL | | 41106473 |
| | | DIVISION | | | VOC | | |
| N60028 / 000112 | 11-15-2000 | TETRA TECH EM | DRAFT WORK PLAN - ADDITIONAL | ADMIN RECORD | DQO | 012 | FRC - LAGUNA |
| DS.0232.15663 | 11-06-2000 | INC. | OFFSHORE INVESTIGATION | INFO | WORK PLAN | | NIGEL |
| PLAN | 00232 | C. ROSE | | REPOSITORY | | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | | | | | 3 OF 27 |
| 00200 | | SOUTHWEST | | | | | 41106473 |
| | | DIVISION | | | | | |

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| N60028 / 000114 | | 12-19-2000 | MARY HILLABRAND, INC. | NONE | 11-21-2000 | S. BALBONI | NAVFAC - SOUTHWEST DIVISION | RESTORATION ADVISORY BOARD (RAB) MEETING TRANSCRIPT OF 11 NOVEMBER 2000 | ADMIN RECORD INFO REPOSITORY | MM PCB RAB SOIL VOC | 012 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |
| N60028 / 000120 | | 01-11-2001 | MARY HILLABRAND, INC. | NONE | 12-19-2000 | S. BALBONI | NAVFAC - SOUTHWEST DIVISION | RESTORATION ADVISORY BOARD (RAB) MEETING NO. 73 TRANSCRIPT FROM MEETING HELD ON 19 DECEMBER 2000 | ADMIN RECORD INFO REPOSITORY | PCB RAB REMOVAL SOIL | 012 BLDG. 1207 BLDG. 1209 BLDG. 1231 BLDG. 1233 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |
| N60028 / 000118 | TC.0308.10766 & SWDIV SER 06CA.JS/1041 | 01-11-2001 | TETRA TECH EM INC. | MM | 12-20-2000 | 00308 | VARIOUS AGENCIES | DRAFT - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) MEETING MINUTES - 11 JULY 2000 (WITH ENCLOSURE) | ADMIN RECORD INFO REPOSITORY | MTG MINS PAH PCB SOIL TPH | 012 029 030 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |
| N60028 / 000119 | TC.0308.10767 & SWDIV SER 06CA.JS/1041 | 01-11-2001 | TETRA TECH EM INC. | MM | 12-20-2000 | 00308 | VARIOUS AGENCIES | REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) MEETING MINUTES - 14 NOVEMBER 2000 - INCLUDES AGENDA, SIGN-IN SHEET, & ACTION ITEM LIST (WITH ATTACHMENTS) | ADMIN RECORD INFO REPOSITORY | MTG MINS TPH | 001 005 007 012 013 017 021 024 027 03 | FRC - LAGUNA NIGEL 181-03-0181 3 OF 27 41106473 |

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| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000121 | 01-11-2001 | TETRA TECH EM | DRAFT - REMEDIAL PROJECT MANAGER | ADMIN RECORD | GW | 003 | FRC - LAGUNA |
| TC.0308.10778 & | 01-09-2001 | INC. | AND BRAC CLEANUP TEAM (RPM/BCT) | INFO | MTG MINS | 005 | NIGEL |
| SWDIV SER | 00308 | | MEETING MINUTES - 12 DECEMBER 2000 | REPOSITORY | NFA | 007 | 181-03-0181 |
| 06CA.JS/0026 | | | (WITH ATTACHMENTS) | | PESTICIDES | 008 | 3 OF 27 |
| MM | | VARIOUS | | | SOIL | 010 | |
| N62474-94-D-7609 | | AGENCIES | | | | 012 | 41106473 |
| 00080 | | | | | | 017 | |
| | | | | | | 021 | |
| | | | | | | 028 | |
| | | | | | | 029 | |
| | | | | | | BLDG. 1213 | |
| | | | | | | BLDG. 1235 | |
| | | | | | | BLDG. 1237 | |
| | | | | | | BLDG. 1252 | |
| | | | | | | BLDG. 1254 | |
| N60028 / 000125 | 01-23-2001 | TETRA TECH EM | DRAFT FIELD SAMPLING PLAN ADDENDUM, | ADMIN RECORD | FSP | 012 | FRC - LAGUNA |
| DS.0314.15091 | 01-17-2001 | INC. | INSTALLATION AND SAMPLING OF | INFO | GW | | NIGEL |
| PLAN | 00314 | K. HOCH | ADDITIONAL GROUNDWATER MONITORING | REPOSITORY | MONITORING | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | WELLS | | WELLS | | 3 OF 27 |
| 00140 | | SOUTHWEST | | | | | |
| | | DIVISION | | | | | |
| | | J. SULLIVAN | | | | | 41106473 |
| N60028 / 000133 | 03-09-2001 | TETRA TECH EM | DRAFT FINAL WORK PLAN ADDITIONAL | ADMIN RECORD | DQO | 012 | FRC - LAGUNA |
| DS.0232.15665 & | 03-02-2001 | INC. | OFFSHORE INVESTIGATION - INCLUDES | INFO | PCB | | NIGEL |
| SWDIV SER | 00232 | C. ROSE | SWDIV TRANSMITTAL LETTER BY J. | REPOSITORY | WORK PLAN | | 181-03-0181 |
| 06CA.JS/207 | | NAVFAC - | SULLIVAN | | | | 4 OF 27 |
| PLAN | | SOUTHWEST | | | | | |
| N62474-94-D-7609 | | DIVISION | | | | | |
| 00275 | | VARIOUS | | | | | 41106473 |

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| N60028 / 000137 DS.0314.16941 PLAN N62474-94-D-7609 00120 | 04-09-2001 03-30-2001 00314 | TETRA TECH EM INC. K. HOCH NAVFAC - SOUTHWEST DIVISION P. ROSENFELD | DRAFT FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN (FSP/QAPP) FOR ADDITIONAL POLYCHLORINATED BIPHENYL INVESTIGATION OF THE FORMER STORAGE YARD | ADMIN RECORD INFO REPOSITORY | DQO FSP PAH PCB QAPP | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 | | | | | |
| N60028 / 000139 TC.0308.10930 & SWDIV SER 06CA.JS/381 MM N62474-94-D-7609 00040 | 04-12-2001 04-10-2001 00308 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT - BASE REALIGNMENT AND CLOSURE CLEANUP TEAM (BCT) MEETING MINUTES - 13 MARCH 2001 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | MTG MINS PAH PCB | 012 021 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 | | | | | |
| N60028 / 000141 DS.0314.16917 PLAN N62474-94-D-7609 00170 | 05-01-2001 04-10-2001 00314 | TETRA TECH EM INC. K. HOCH NAVFAC - SOUTHWEST DIVISION P. ROSENFELD | DRAFT FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN (FSP/QAPP), INVESTIGATION OF VERTICAL EXTENT OF POLYCHLORINATED BIPHENYLS (PCB) AT THE FORMER STORAGE YARD | ADMIN RECORD INFO REPOSITORY | DQO FSP PAH PCB QAPP | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 | | | | | |
| N60028 / 000142 DS.0314.15092 PLAN N62474-94-D-7609 00090 | 05-01-2001 04-13-2001 00314 | TETRA TECH EM INC. K. HOCH NAVFAC - SOUTHWEST DIVISION P. ROSENFELD | FINAL FIELD SAMPLING PLAN, INSTALLATION AND SAMPLING OF ADDITIONAL GROUNDWATER MONITORING WELLS | ADMIN RECORD INFO REPOSITORY | DQO FSP GW MONITORING PCB PVC SVOC TPH TPH-E VOC WELLS | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 | | | | | |

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| N60028 / 000146 TC.0323.10903 & SWDIV SER 06CA.JS/0457 MM N62474-94-D-7609 00006 | 05-04-2001 05-01-2001 00323 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) SITE 12 EE/CA MEETING MINUTES - 19 DECEMBER 2000 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | EE/CA MM | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 |
| N60028 / 000147 TC.0323.10904 & SWDIV SER 06CA.JS/0457 MM N62474-94-D-7609 00020 | 05-04-2001 05-01-2001 00323 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) SITE 12 EE/CA MEETING MINUTES - 08 JANUARY 2001 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | BCT EE/CA IRA MM | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 |
| N60028 / 000149 TC.0369.10905 & SWDIV SER 06CA.JS/0457 MM N62474-94-D-7609 00010 | 05-04-2001 05-01-2001 00369 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) SITE 12 SOIL GAS MEETING MINUTES - 16 JANUARY 2001 - INCLUDES AGENDA, SIGN- IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | BCT BRAC GW MTG MINS SOIL VOC | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 |
| N60028 / 000150 TC.0314.10906 & SWDIV SER 06CA.JS/0457 MM N62474-94-D-7609 00008 | 05-04-2001 05-01-2001 00314 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) SITE 12 MEETING MINUTES - 19 JANUARY 2001 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | BCT BRAC MTG MINS PAH RPM | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 |

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| N60028 / 000152 TC.0308.10968 & SWDIV SER 06CA.JS/0457 MM N62474-94-D-7609 00008 | 05-04-2001 05-01-2001 00308 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT - REMEDIAL PROJECT MANAGER AND BRAC CLEANUP TEAM (RPM/BCT) SITE 12 INTERIM MEASURES MEETING MINUTES - 14 FEBRUARY 2001 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | BCT BRAC MTG MINS PAH PCB RPM | 012 | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 | | | | | | | |
| N60028 / 000167 DS.0284.17059-1 & SWDIV SER 06CT.EC/0576 PLAN N62474-94-D-7609 00110 | 07-09-2001 05-29-2001 00284 | TETRA TECH EM INC. C. FREEMAN NAVFAC - SOUTHWEST DIVISION E. CASADOS | FINAL FIELD SAMPLING PLAN FOR FACILITYWIDE GROUNDWATER MONITORING - INCLUDES SWDIV TRANSMITTAL LETTER BY E. CASADOS {SEE AR #168 - FINAL QAPP & #647 - FINAL ADDENDUM} | ADMIN RECORD INFO REPOSITORY | DQO FSP GW MONITORING SVOC TPH TPH-E TPH-P VOC | 004 005 006 009 011 012 014 015 017 019 020 021 022 024 025 D4B F2A F2B UST 180C UST 201 UST 227 UST 368B | FRC - LAGUNA NIGEL 181-03-0181 4 OF 27 41106473 | | | | | | | |

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| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 000168 | 07-09-2001 | TETRA TECH EM | FINAL QUALITY ASSURANCE PLAN | ADMIN RECORD | BTEX | 004 | | FRC - LAGUNA |
| DS.0284.17062-1 & | 05-29-2001 | INC. | ADDENDUM FOR FACILITYWIDE | INFO | DQO | 005 | | NIGEL |
| SWDIV SER | 00284 | C. FREEMAN | GROUNDWATER MONITORING - INCLUDES | REPOSITORY | GW | 006 | | 181-03-0181 |
| 06CT.EC/0576 | | NAVFAC - | SWDIV TRANSMITTAL LETTER BY E. | | MONITORING | 009 | | 4 OF 27 |
| PLAN | | SOUTHWEST | CASADOS {SEE AR #167 - FINAL FIELD | | MTBE | 011 | | |
| N62474-94-D-7609 | | DIVISION | SAMPLING PLAN & #647 - FINAL ADDENDUM} | | PAH | 012 | | 41106473 |
| 00100 | | E. CASADOS | | | PCB | 014 | | |
| | | | | | PCE | 015 | | |
| | | | | | QAPP | 017 | | |
| | | | | | SVOC | 019 | | |
| | | | | | TPH | 020 | | |
| | | | | | TPH-D | 021 | | |
| | | | | | TPH-E | 022 | | |
| | | | | | TPH-G | 024 | | |
| | | | | | TPH-MO | 025 | | |
| | | | | | TPH-P | D4B | | |
| | | | | | VOC | F2A | | |
| | | | | | | F2B | | |
| | | | | | | UST 180C | | |
| | | | | | | UST 201 | | |
| | | | | | | UST 227 | | |
| | | | | | | UST 368B | | |
| N60028 / 000176 | 07-09-2001 | IT CORPORATION | DRAFT FIELD SAMPLING PLAN ADDENDUM - | ADMIN RECORD | DQO | 012 | | FRC - LAGUNA |
| 1524 & SWDIV SER | 06-07-2001 | J. BAUER | INTERIM MEASURES, TRENCH | INFO | FSP | | | NIGEL |
| 06CA.JS/603 | 00039 | NAVFAC - | EXPLORATION AND INSTALLING INTERIM | REPOSITORY | PAH | | | 181-03-0181 |
| PLAN | | SOUTHWEST | COVER, OLD BUNKER STORAGE AREA, | | PCB | | | 5 OF 27 |
| N62474-98-D-2076 | | DIVISION | REVISION 0 - INCLUDES SWDIV | | QAPP | | | |
| 00040 | | | TRANSMITTAL LETTER BY J. SULLIVAN | | VOC | | | 41106473 |

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| N60028 / 000215 1572 PLAN N62474-98-D-2076 00040 | 07-09-2001 06-15-2001 00039 | IT CORPORATION J. BAUR NAVFAC - SOUTHWEST DIVISION | FINAL FIELD SAMPLING PLAN ADDENDUM - INTERIM MEASURES, TRENCH EXPLORATION AND INSTALLING INTERIM COVER, OLD BUNKER STORAGE AREA, REVISION 0 | ADMIN RECORD INFO REPOSITORY | DQO FSP PAH PCB QAPP VOC | 012 | FRC - LAGUNA NIGEL 181-03-0181 5 OF 27 41106473 | | | | | |
| N60028 / 000255 DS.0314.16918 PLAN N62474-94-D-7609 00170 | 07-26-2001 07-17-2001 00314 | TETRA TECH EM INC. K. HOCH NAVFAC - SOUTHWEST DIVISION M. BLOOM | FINAL FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN (FSP/QAPP) - INVESTIGATION OF VERTICAL EXTENT OF POLYCHLORINATED BIPHENYLS AT THE FORMER STORAGE YARD | ADMIN RECORD INFO REPOSITORY | DQO FSP PAH PCB QAPP | 012 | FRC - LAGUNA NIGEL 181-03-0181 6 OF 27 41106473 | | | | | |
| N60028 / 000260 TC.0308.11195 & SWDIV SER 06CA.JS/0971 MM N62474-94-D-7609 00025 | 10-10-2001 08-07-2001 00308 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT REMEDIAL PROJECT MANAGER AND BASE REALIGNMENT AND CLOSURE CLEANUP TEAM MEETING MINUTES - 7 AUGUST 2001 - INCLUDES AGENDA, SIGN-IN SHEET, ATTACHMENTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | BRAC MM | 001 007 012 | FRC - LAGUNA NIGEL 181-03-0181 6 OF 27 41106473 | | | | | |
| N60028 / 000640 TC.0308.11291 & SWDIV SER 06CA.JS/1173 MM N62474-94-D-7609 00030 | 12-11-2001 09-13-2001 00308 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT REMEDIAL PROJECT MANAGERS AND BASE REALIGNMENT AND CLOSURE CLEANUP TEAM MEETING MINUTES FROM MEETING HELD ON 13 SEPTEMBER 2001 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL BY J. SULLIVAN (WITH ATTACHMENTS) | ADMIN RECORD INFO REPOSITORY | BTEX EE/CA GW LEAD MTG MINS PCE SOIL SVE TCE TPH VOC | 005 008 011 012 024 029 | FRC - LAGUNA NIGEL 181-03-0181 16 OF 27 41106473 | | | | | |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000268 DS.0232.17351 & SWDIV SER 06CA.JS/0954 MEMO N62474-94-D-7609 00035 | 10-19-2001 09-19-2001 00232 | TETRA TECH EM INC. C. ROSE NAVFAC - SOUTHWEST DIVISION | DRAFT TECHNICAL MEMORANDUM, REMEDIAL INVESTIGATION OFFSHORE SEDIMENTS OPERABLE UNIT, SITE 12 OFFSHORE AREA, FIELD INVESTIGATION RESULTS INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | BCT FSP OU PCB QAPP RI | 012 | FRC - LAGUNA NIGEL 181-03-0181 6 OF 27 41106473 |
| N60028 / 000641 TC.0308.11292 & SWDIV SER 06CA.JS/1173 MM N62474-94-D-7609 00025 | 12-11-2001 10-02-2001 00308 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT REMEDIAL PROJECT MANAGERS AND BASE REALIGNMENT AND CLOSURE CLEANUP TEAM MEETING MINUTES FROM MEETING HELD ON 02 OCTOBER 2001 - INCLUDES AGENDA, SIGN-IN SHEET, HANDOUTS AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN (WITH ATTACHMENTS) | ADMIN RECORD INFO REPOSITORY | EE/CA MTG MINS PCB TCRA TPH VOC | 012 024 BLDG. 1246 BLDG. 1248 BLDG. 1252 BLDG. 1254 BLDG. 1413 | FRC - LAGUNA NIGEL 181-03-0181 16 OF 27 41106473 |
| N60028 / 000261 DS.0323.17353 & SWDIV SER 06CA.JS/1055 PLAN N62474-94-D-7609 00017 | 10-10-2001 10-03-2001 00323 | TETRA TECH EM INC. V. EARLY NAVFAC - SOUTHWEST DIVISION | DRAFT CONSTRUCTION OVERSIGHT WORK PLAN ADDENDUM FOR THE REMOVAL OF POLYCHLORINATED BIPHENYL AND POLYCYCLIC AROMATIC HYDROCARBON-CONTAMINATED SOIL INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN (SEE AR #78 - FINAL WORK PLAN) | ADMIN RECORD INFO REPOSITORY | PAH PCB QAPP REMOVAL SOIL | 012 BLDG. 1246 BLDG. 1248 BLDG. 1252 BLDG. 1254 BLDG. 1413 | FRC - LAGUNA NIGEL 181-03-0181 6 OF 27 41106473 |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 000647 | 12-12-2001 | TETRA TECH EM | FINAL TOTAL DISSOLVED AND SUSPENDED | ADMIN RECORD | FSP | 004 | | FRC - LAGUNA |
| DS.0284.17415 | 10-16-2001 | INC. | SOLIDS ADDENDUM TO THE FIELD | INFO | GW | 005 | | NIGEL |
| PLAN | 00284 | C. FREEMAN | SAMPLING PLAN AND QUALITY | REPOSITORY | MONITORING | 006 | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | ASSURANCE PROJECT PLAN FOR | | QAPP | 009 | | 16 OF 27 |
| 00020 | | SOUTHWEST | FACILITYWIDE GROUNDWATER | | | 011 | | |
| | | DIVISION | MONITORING {SEE AR #167 - FINAL FSP, | | | 012 | | 41106473 |
| | | E. CASADOS | #168 - FINAL QAPP & #1114 - DRAFT QAPP} | | | 014 | | |
| | | | | | | 015 | | |
| | | | | | | 017 | | |
| | | | | | | 019 | | |
| | | | | | | 020 | | |
| | | | | | | 021 | | |
| | | | | | | 022 | | |
| | | | | | | 024 | | |
| | | | | | | 025 | | |
| | | | | | | D4B | | |
| | | | | | | F2A | | |
| | | | | | | F2B | | |
| | | | | | | UST 180C | | |
| | | | | | | UST 201 | | |
| | | | | | | UST 227 | | |
| | | | | | | UST 368B | | |
| N60028 / 000645 | 12-11-2001 | TETRA TECH EM | DRAFT FIELD SAMPLING PLAN/QUALITY | ADMIN RECORD | DQO | 012 | | FRC - LAGUNA |
| DS.0314.17395 | 10-18-2001 | INC. | ASSURANCE PROJECT PLAN (FSP/QAPP) | INFO | FSP | | | NIGEL |
| PLAN | 00314 | K. HOCH | ADDENDUM - ADDITIONAL | REPOSITORY | PAH | | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | POLYCHLORINATED BIPHENYL | | PCB | | | 16 OF 27 |
| 00030 | | SOUTHWEST | INVESTIGATION OF THE FORMER | | QAPP | | | |
| | | DIVISION | STORAGE YARD | | | | | 41106473 |

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| N60028 / 000439 | 11-02-2001 | TETRA TECH EM | ACTION MEMORANDUM TIME-CRITICAL | ADMIN RECORD | ARAR | 012 | | FRC - LAGUNA |
| TC.0323.11290 & SWDIV SER | 10-25-2001 00323 | INC. | REMOVAL ACTION FOR BUILDINGS 1246, 1248, 1252, 1254, AND 1413, SITE 12 - INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | INFO REPOSITORY | BCT BRAC | BLDG. 1246 BLDG. 1248 | | NIGEL 181-03-0181 |
| 06CA.JS/1121 MEMO | | VARIOUS AGENCIES | | | PA | BLDG. 1252 | | 10 OF 27 |
| N62474-94-D-7609 00030 | | | | | PAH PCB RI SI | BLDG. 1254 BLDG. 1413 | | 41106473 |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 000646 | 12-11-2001 | TETRA TECH EM | DRAFT GROUNDWATER STATUS REPORT | ADMIN RECORD | BTEX | 001 | | FRC - LAGUNA |
| DS.084.16545-1 | 10-25-2001 | INC. | SUMMARY OF GROUNDWATER | INFO | GW | 001A | | NIGEL |
| RPT | 00284 | C. FREEMAN | MONITORING MARCH THROUGH OCTOBER | REPOSITORY | METALS | 001E | | 181-03-0181 |
| N62474-94-D-7609 | | NAVFAC - | 2000, VOLUMES I-II OF II [CD COPY | | MONITORING | 004 | | 16 OF 27 |
| 02000 | | SOUTHWEST | ENCLOSED OF ATTACHMENTS B2 AND B5 & | | MTBE | 006 | | |
| | | DIVISION | APPENDICES C AND D] | | PCB | 007 | | 41106473 |
| | | E. CASADOS | | | SVOC | 009 | | |
| | | | | | TPH | 010 | | |
| | | | | | TPH-E | 011 | | |
| | | | | | TPH-P | 012 | | |
| | | | | | UST | 014 | | |
| | | | | | VOC | 015 | | |
| | | | | | | 017 | | |
| | | | | | | 020 | | |
| | | | | | | 021 | | |
| | | | | | | 022 | | |
| | | | | | | 024 | | |
| | | | | | | 025 | | |
| | | | | | | 180C | | |
| | | | | | | 201 | | |
| | | | | | | 227 | | |
| | | | | | | 368A | | |
| | | | | | | D4B | | |
| | | | | | | F2A | | |
| | | | | | | F2B | | |
| | | | | | | TANK 103 | | |
| | | | | | | TANK 104 | | |
| | | | | | | UST 180C | | |
| | | | | | | UST 1A | | |
| | | | | | | UST 1E | | |
| | | | | | | UST 201 | | |
| | | | | | | UST 227 | | |
| | | | | | | UST 368B | | |

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| N60028 / 000643 | 12-11-2001 | TETRA TECH EM | FINAL FIELD SAMPLING PLAN/QUALITY | ADMIN RECORD | DQO | 012 | | FRC - LAGUNA |
| DS.0314.17396 & | 11-14-2001 | INC. | ASSURANCE PROJECT PLAN (FSP/QAPP) | INFO | FSP | | | NIGEL |
| SWDIV SER | 00314 | K. HOCH | ADDENDUM - ADDITIONAL | REPOSITORY | PAH | | | 181-03-0181 |
| 06CA.JS/1197 | | NAVFAC - | POLYCHLORINATED BIPHENYL | | PCB | | | 16 OF 27 |
| PLAN | | SOUTHWEST | INVESTIGATION OF THE FORMER | | QAPP | | | |
| N62474-94-D-7609 | | DIVISION | STORAGE YARD - INCLUDES SWDIV | | | | | 41106473 |
| 00040 | | | TRANSMITTAL LETTER BY J. SULLIVAN | | | | | |

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| N60028 / 000652 | 03-01-2002 | NAVFAC - | DRAFT MEETING MINUTES FROM THE | ADMIN RECORD | CAP | 001A | FRC - LAGUNA |
| TC.0308.11322 & SWDIV SER | 01-08-2002 | SOUTHWEST | REMEDIAL PROJECT MANAGERS AND BASE | INFO | COMMENTS | 001E | NIGEL |
| 06CA.JS/0021 | 00308 | DIVISION | REALIGNMENT AND CLOSURE CLEANUP | REPOSITORY | DCE | 002C | 181-03-0181 |
| MM | | J. SULLIVAN | TEAM (RPM/BCT) FROM MEETING HELD ON | | DVE | 004 | 16 OF 27 |
| N62474-94-D-7609 | | VARIOUS | 4 DECEMBER 2001 - INCLUDES SIGN-IN | | EE/CA | 006 | |
| 00100 | | AGENCIES | SHEET AND AGENDA AND HANDOUTS (| | FSP | 007 | 41106473 |
| | | | WITH ATTACHMENTS) | | GW | 011 | |
| | | | | | LANDFILL | 012 | |
| | | | | | MONITORING | 013 | |
| | | | | | MTG MINS | 014 | |
| | | | | | PAH | 015 | |
| | | | | | PCB | 019 | |
| | | | | | PCE | 020 | |
| | | | | | QAPP | 021 | |
| | | | | | RAB | 022 | |
| | | | | | RI | 024 | |
| | | | | | SOIL | 025 | |
| | | | | | SVE | 027 | |
| | | | | | TCE | 029 | |
| | | | | | TCRA | 201 | |
| | | | | | TPH | 368A | |
| | | | | | UST | 368B | |
| | | | | | VOC | BLDG. 1100 | |
| | | | | | WELLS | BLDG. 1102 | |
| | | | | | | BLDG. 1104 | |
| | | | | | | BLDG. 1106 | |
| | | | | | | BLDG. 1246 | |
| | | | | | | BLDG. 1248 | |
| | | | | | | BLDG. 1252 | |
| | | | | | | BLDG. 1254 | |
| | | | | | | BLDG. 1311 | |
| | | | | | | BLDG. 1413 | |
| | | | | | | BLDG. 240 | |
| | | | | | | BLDG. 530 | |
| | | | | | | BLDG. 66 | |

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| | | | | | | BLDG. 99 BLDG.530 UST 180C UST 227 UST 234 UST 240A UST 240B | | |
| N60028 / 000656 TC.0308.11381 & SWDIV SER 06CA.JS/0103 MM N62474-94-D-7609 00084 | 03-01-2002 01-31-2002 00308 | NAVFAC - SOUTHWEST DIVISION J. SULLIVAN VARIOUS AGENCIES | DRAFT MEETING MINUTES FROM THE REMEDIAL PROJECT MANAGER/BRAC CLEANUP TEAM (RPM/BCT) MONTHLY MEETING HELD ON 8 JANUARY 2002 - INCLUDES SIGN-IN SHEET AND AGENDA AND HANDOUTS (WITH ATTACHMENTS) | ADMIN RECORD INFO REPOSITORY | EE/CA FSP MTG MINS PCB QAPP SOIL SVOC UST VOC | 012 024 027 BLDG. 1100 BLDG. 1246 BLDG. 1248 BLDG. 1254 PARCEL T008 PARCEL T056 PARCEL T088 PARCEL T090 PARCEL T100 PARCEL T110 PARCEL T116 PARCEL YB0 PARCEL YB0: | FRC - LAGUNA NIGEL 181-03-0186 1 OF 6 41031802 | |
| N60028 / 000663 DS.0314.17568 & SWDIV SER 06CA.SA/0135 PLAN N62474-94-D-7609 00160 | 03-06-2002 02-01-2002 00314 | TETRA TECH EM INC. K. HOCH NAVFAC - SOUTHWEST DIVISION | DRAFT SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN) SOUTH STORAGE YARD INVESTIGATION - INCLUDES SWDIV TRANSMITTAL LETTER BY S. ANDERSON | ADMIN RECORD INFO REPOSITORY | FSP MTBE PCB QAPP SAP SVOC TPH-E TPH-P VOC | 012 | FRC - LAGUNA NIGEL 181-03-0186 1 OF 6 41031802 | |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000872 | 03-15-2002 | TETRA TECH EM | DRAFT REMEDIAL PROJECT MANAGERS | ADMIN RECORD | EE/CA | 009 | FRC - LAGUNA |
| TC.0308.11430 & | 02-05-2002 | INC. | AND BASE REALIGNMENT AND CLOSURE | INFO | FSP | 010 | NIGEL |
| SWDIV SER | 00308 | | CLEANUP TEAM MEETING MINUTES FOR | REPOSITORY | MTG MINS | 011 | 181-03-0186 |
| 06CA.JS/0225 | | NAVFAC - | MEETING HELD ON 05 FEBRUARY 2002 - | | PCB | 012 | 1 OF 6 |
| MM | | SOUTHWEST | INCLUDES SIGN-IN SHEET, | | SOIL | 024 | |
| N62474-94-D-7609 | | DIVISION | HANDOUTS,AGENDA AND SWDIV | | VOC | 029 | 41031802 |
| 00100 | | | TRANSMITTAL LETTER BY J. SULLIVAN | | | | |
| | | | | | | BLDG. 1110 | |
| | | | | | | BLDG. 1254 | |
| | | | | | | BLDG. 240 | |
| | | | | | | BLDG. 262 | |
| | | | | | | BLDG. 66 | |
| | | | | | | BLDG. 99 | |
| | | | | | | PARCEL T00€ | |
| | | | | | | PARCEL T05€ | |
| | | | | | | PARCEL T08€ | |
| | | | | | | PARCEL T09€ | |
| | | | | | | PARCEL T09€ | |
| | | | | | | PARCEL T10€ | |
| | | | | | | PARCEL T11€ | |
| | | | | | | PARCEL T11€ | |
| | | | | | | PARCEL YB0€ | |
| | | | | | | PARCEL YB0€ | |
| N60028 / 000665 | 03-06-2002 | TETRA TECH EM | DRAFT FIELD SAMPLING PLAN AND | ADMIN RECORD | FSP | 012 | FRC - LAGUNA |
| DS.0314.17647 & | 02-13-2002 | INC. | QUALITY ASSURANCE PROJECT PLAN | INFO | GW | | NIGEL |
| SWDIV SER | 00314 | K. HOCH | ADDENDUM 2 ADDITIONAL | REPOSITORY | MCB | | 181-03-0186 |
| 06CA.MV/0146 | | NAVFAC - | POLYCHLORINATED BIPHENYL | | PAH | | 1 OF 6 |
| PLAN | | SOUTHWEST | INVESTIGATION OF THE FORMER | | PCB | | |
| N62474-94-D-7609 | | DIVISION | STORAGE YARD - INCLUDES SWDIV | | QAPP | | 41031802 |
| 00040 | | | TRANSMITTAL BY M. BLOOM | | SOIL | | |

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| N60028 / 000870 | 03-15-2002 | TETRA TECH EM | FINAL SAMPLING AND ANALYSIS PLAN | ADMIN RECORD | FSP | 012 | FRC - LAGUNA | |
| DS.0314.17569 | 02-19-2002 | INC. | (FIELD SAMPLING PLAN AND QUALITY | INFO | MTBE | | NIGEL | |
| PLAN | 00314 | K. HOCH | ASSURANCE PROJECT PLAN) SOUTH | REPOSITORY | PCB | | 181-03-0186 | |
| N62474-94-D-7609 | | NAVFAC - | STORAGE YARD INVESTIGATION | | QAPP | | 1 OF 6 | |
| 00040 | | SOUTHWEST | | | SAP | | | |
| | | DIVISION | | | SVOC | | | 41031802 |
| | | | | | TPH-E | | | |
| | | | | | TPH-P | | | |
| | | | | | VOC | | | |
| N60028 / 000669 | 03-15-2002 | TETRA TECH EM | FINAL FIELD SAMPLING PLAN AND QUALITY | ADMIN RECORD | FSP | 012 | FRC - LAGUNA | |
| DS.0314.17653 & | 03-07-2002 | INC. | ASSURANCE PROJECT PLAN ADDENDUM 2 | INFO | GW | | NIGEL | |
| SWDIV SER | 00314 | K. HOCH | ADDITIONAL POLYCHLORINATED BIPHENYL | REPOSITORY | MCB | | 181-03-0186 | |
| 06CA.JS/0212 | | NAVFAC - | INVESTIGATION OF THE FORMER | | PAH | | 1 OF 6 | |
| PLAN | | SOUTHWEST | STORAGE YARD - INCLUDES SWDIV | | PCB | | | |
| N62474-94-D-7609 | | DIVISION | TRANSMITTAL LETTER BY J. SULLIVAN | | QAPP | | | 41031802 |
| 00065 | | | | | SAP | | | |
| | | | | | SOIL | | | |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 000874 | 04-22-2002 | TETRA TECH EM | FINAL INTERIM GROUNDWATER | ADMIN RECORD | BTEX | 006 | | FRC - LAGUNA |
| DS.0284.17400 | 03-27-2002 | INC. | MONITORING REPORT - GROUNDWATER | INFO | GW | 011 | | NIGEL |
| RPT | 00284 | C. FREEMAN | MONITORING FROM MAY TO AUGUST 2001 | REPOSITORY | MONITORING | 012 | | 181-03-0186 |
| N62474-94-D-7609 | | NAVFAC - | | | MTBE | 014 | | 1 OF 6 |
| 00350 | | SOUTHWEST | | | PCB | 015 | | |
| | | DIVISION | | | SVOC | 020 | | 41031802 |
| | | E. CASADOS | | | TPH-E | 021 | | |
| | | | | | TPH-P | 022 | | |
| | | | | | VOC | 024 | | |
| | | | | | | 025 | | |
| | | | | | | PIPELINE D4E | | |
| | | | | | | PIPELINE F2A | | |
| | | | | | | PIPELINE F2E | | |
| | | | | | | PIPELINE USI | | |
| | | | | | | UST 180C | | |
| | | | | | | UST 201 | | |
| | | | | | | UST 227 | | |
| | | | | | | UST 368B | | |

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| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000166 | 05-16-2002 | TETRA TECH EM | DRAFT SAMPLING AND ANALYSIS PLAN | ADMIN RECORD | ARSENIC | 012 | FRC - LAGUNA |
| DS.0323.17673-1 | 04-22-2002 | INC. | (FIELD SAMPLING PLAN AND QUALITY | CONFIDENTIAL | AWQC | BLDG. 1311 | NIGEL |
| PLAN | 00323 | J. WICKHAM | ASSURANCE PROJECT PLAN) | INFO | COC | BLDG. 1313 | 181-03-0186 |
| N62474-94-D-7609 | | NAVFAC - | INVESTIGATION OF ELEVATED | REPOSITORY | DQO | | 1 OF 6 |
| 00280 | | SOUTHWEST | CONCENTRATIONS OF ARSENIC IN | | FSP | | |
| | | DIVISION | GROUNDWATER - INCLUDES SWDIV | | GC/MS | | 41031802 |
| | | | TRANSMITTAL LETTER BY E. CASADOS | | GW | | |
| | | | | | H&SP | | |
| | | | | | MW | | |
| | | | | | PRG | | |
| | | | | | QA | | |
| | | | | | QAPP | | |
| | | | | | QC | | |
| | | | | | SAP | | |
| | | | | | SOIL | | |
| | | | | | SOIL BORING | | |
| | | | | | SOP | | |
| | | | | | SVOC | | |
| | | | | | TPH | | |
| | | | | | UST | | |
| | | | | | VOC | | |
| | | | | | WELLS | | |

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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000877 3797.0 RPT N62474-98-D-2076 00400 | 05-16-2002 04-23-2002 00039 | IT CORPORATION J. BAUR NAVFAC - SOUTHWEST DIVISION | DRAFT FIELD ACTIVITY REPORT - RESIDENTIAL HOUSING AREA INTERIM MEASURES, TRENCH EXPLORATION AND INSTALLATION OF INTERIM MEASURES (INCLUDES SWDIV TRANSMITTAL LETTER FROM M. FISHER) {SEE AR #887 - RESPONSE TO COMMENTS} | ADMIN RECORD INFO REPOSITORY | ASBESTOS COC H&SP IRP PAH PCB PIPELINE SOIL SOIL BORING VOC | 012 BLDG. 1205 BLDG. 1207 BLDG. 1213 BLDG. 1222 BLDG. 1224 BLDG. 1227 BLDG. 1229 BLDG. 1235 BLDG. 1236 BLDG. 1237 BLDG. 1317 BLDG. 1319 BLDG. 1321 BLDG. 1323 BLDG. 1325 | FRC - LAGUNA NIGEL 181-03-0186 1 OF 6 41031802 |
| N60028 / 000878 3415 RPT N62474-98-D-2076 00400 | 05-16-2002 05-01-2002 00045 | IT CORPORATION J. BAUR NAVFAC - SOUTHWEST DIVISION | DRAFT POST-CONSTRUCTION REPORT; TIME-CRITICAL REMOVAL ACTION OF PCB- AND PAH-CONTAMINATED SOIL; RESIDENTIAL HOUSING AREA HOMELESS DEVELOPMENT INITIATIVE BUILDINGS (INCLUDES SWDIV TRANSMITTAL LETTER FROM M. FISHER) | ADMIN RECORD INFO REPOSITORY | COC GW H&SP PAH PCB SOIL TCRA | 012 BLDG. 1246 BLDG. 1248 BLDG. 1252 BLDG. 1254 BLDG. 1413 | FRC - LAGUNA NIGEL 181-03-0186 2 OF 6 41031802 |

| UIC No. / Rec. No. | | | | | | | Location |
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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 000879 | 05-16-2002 | IT CORPORATION | DRAFT FIELD ACTIVITY REPORT - | ADMIN RECORD | ASBESTOS | 012 | FRC - LAGUNA |
| 3414 | 05-01-2002 | J. BAUR | RESIDENTIAL HOUSING AREA INTERIM | INFO | COC | BLDG. 1101 | NIGEL |
| RPT | 00039 | NAVFAC - | MEASURES, TRENCH EXPLORATION; | REPOSITORY | H&SP | BLDG. 1103 | 181-03-0186 |
| N62474-98-D-2076 | | SOUTHWEST | HOMELESS DEVELOPMENT INITIATIVE | | PAH | BLDG. 1105 | 2 OF 6 |
| 00500 | | DIVISION | BUILDINGS (INCLUDES SWDIV | | PCB | BLDG. 1107 | |
| | | | TRANSMITTAL LETTER FROM M. FISHER) | | PIPELINE | BLDG. 1117 | 41031802 |
| | | | {SEE AR #888 - RESPONSE TO COMMENTS} | | PRG | BLDG. 1246 | |
| | | | | | SOIL | BLDG. 1248 | |
| | | | | | VOC | BLDG. 1252 | |
| | | | | | | BLDG. 1254 | |
| | | | | | | BLDG. 1401 | |
| | | | | | | BLDG. 1408 | |
| | | | | | | BLDG. 1410 | |
| | | | | | | BLDG. 1411 | |
| | | | | | | BLDG. 1412 | |
| | | | | | | BLDG. 1413 | |
| N60028 / 000880 | 05-16-2002 | IT CORPORATION | DRAFT PROJECT PLAN ADDENDUM FOR | ADMIN RECORD | DQO | 012 | FRC - LAGUNA |
| 3889.0 | 05-08-2002 | | THE FORMER HOUSING AREA INTERIM | INFO | GW | PARCEL T093 | NIGEL |
| PLAN | 00039 | NAVFAC - | MEASURES EXPLORATION AT PARCELS | REPOSITORY | PAH | PARCEL T094 | 181-03-0186 |
| N62474-98-D-2076 | | SOUTHWEST | T093 AND T094 (INCLUDES SWDIV | | PCB | | 2 OF 6 |
| 00125 | | DIVISION | TRANSMITTAL LETTER FROM S. | | PRG | | |
| | | | ANDERSON) | | QAPP | | 41031802 |
| | | | | | QC | | |
| | | | | | SAP | | |
| | | | | | SOIL | | |
| | | | | | SOP | | |
| | | | | | SSHP | | |
| | | | | | SVOC | | |
| | | | | | TPH | | |
| | | | | | VOC | | |

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| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 000881 | 05-16-2002 | IT CORPORATION | FINAL PROJECT PLAN ADDENDUM FOR THE | ADMIN RECORD | GW | 012 | | FRC - LAGUNA |
| 3890.0 | 05-13-2002 | | FORMER HOUSING AREA INTERIM | INFO | PAH | PARCEL T093 | | NIGEL |
| PLAN | 00039 | NAVFAC - | MEASURES EXPLORATION AT PARCELS | REPOSITORY | PCB | PARCEL T094 | | 181-03-0186 |
| N62474-98-D-2076 | | SOUTHWEST | T093 AND T094 (INCLUDES SWDIV | | QAPP | | | 2 OF 6 |
| 00150 | | DIVISION | TRANSMITTAL LETTER FROM S. | | QC | | | |
| | | | ANDERSON) | | SAP | | | 41031802 |
| | | | | | SOIL | | | |
| | | | | | SSHP | | | |
| | | | | | SVOC | | | |
| | | | | | TPH | | | |
| | | | | | VOC | | | |

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| Doc. Control No. | Prc. Date | Author Affil. | | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 000885 | 06-18-2002 | TETRA TECH EM | FINAL FIELD SAMPLING PLAN FOR THE | ADMIN RECORD | AOC | 001 | | FRC - LAGUNA |
| DS.0284.17720 | 05-14-2002 | INC. | FACILITYWIDE GROUNDWATER | INFO | BRAC | 004 | | NIGEL |
| PLAN | 00284 | C. FREEMAN | MONITORING PROGRAM | REPOSITORY | BTEX | 006 | | 181-03-0186 |
| N62474-94-D-7609 | | NAVFAC - | | | CAP | 009 | | 2 OF 6 |
| 00300 | | SOUTHWEST | | | DQO | 010 | | |
| | | DIVISION | | | FSP | 011 | | 41031802 |
| | | | | | GW | 012 | | |
| | | | | | IDW | 014 | | |
| | | | | | MNA | 015 | | |
| | | | | | MONITORING | 019 | | |
| | | | | | MTBE | 020 | | |
| | | | | | MW | 021 | | |
| | | | | | PAH | 022 | | |
| | | | | | PCB | 024 | | |
| | | | | | PIPELINE | 025 | | |
| | | | | | QA | D1B | | |
| | | | | | QAPP | D4B | | |
| | | | | | QC | F2A | | |
| | | | | | RI | F2B | | |
| | | | | | SOIL BORING | USCG | | |
| | | | | | SOP | UST 180C | | |
| | | | | | SVOC | UST 1A | | |
| | | | | | TPH | UST 1E | | |
| | | | | | UST | UST 201 | | |
| | | | | | VOC | UST 227 | | |
| | | | | | WELLS | UST 368A | | |
| | | | | | | UST 368B | | |
| N60028 / 000887 | 07-20-2002 | IT CORPORATION | FINAL FIELD ACTIVITY REPORT - FOR SITE | ADMIN RECORD | PAH | 012 | | FRC - LAGUNA |
| 3813 & SWDIV SER | 06-19-2002 | | 12 AREA INTERIM MEASURES, TRENCH | INFO | PCB | | | NIGEL |
| 06CA.MVF/0638 | 00039 | NAVFAC - | EXPLORATION AND INSTALLATION OF | REPOSITORY | VOC | | | 181-03-0186 |
| RPT | | SOUTHWEST | INTERIM MEASURES, RESIDENTIAL | | | | | 2 OF 6 |
| N62474-98-D-2076 | | DIVISION | HOUSING AREA, REVISION 0 | | | | | |
| 00330 | | | | | | | | 41031802 |

| UIC No. / Rec. No. | Doc. Control No. | Prc. Date | Author Affil. | Record Type | Record Date | Author | Contr./Guid. No. | CTO No. | Recipient Affil. | Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | Location FRC Access. No. FRC/SWDIV Box No. FRC Warehouse Loc. CD No. |
|--------------------|--------------------------------|------------|--------------------|-------------|-------------------|------------------------------|------------------|---------|------------------------------|-----------------|------------|------------------------------|--|--|---|---------------------------------|--|
| N60028 / 000888 | 4068 & SWDIV SER 06CA.MVF\0644 | 07-20-2002 | IT CORPORATION | RPT | 06-20-2002 | NAVAFAC - SOUTHWEST DIVISION | N62474-98-D-2076 | 00039 | NAVAFAC - SOUTHWEST DIVISION | 00500 | | NAVAFAC - SOUTHWEST DIVISION | FINAL FIELD ACTIVITY REPORT - SITE 12 AREA INTERIM MEASURES TRENCH EXPLORATION, HOMELESS DEVELOPMENT INITIATIVE BUILDINGS, REVISION 0 | ADMIN RECORD INFO REPOSITORY | DDD DDE DDT PAH PCB PVC VOC | 012 | FRC - LAGUNA NIGEL 181-03-0186 2 OF 6 41031802 |
| N60028 / 000889 | 4070 & SWDIV SER 06CA.MVF\0645 | 07-20-2002 | IT CORPORATION | RPT | 06-21-2002 | NAVAFAC - SOUTHWEST DIVISION | N62474-98-D-2076 | 00045 | NAVAFAC - SOUTHWEST DIVISION | 00250 | | NAVAFAC - SOUTHWEST DIVISION | FINAL POST-CONSTRUCTION REPORT; TIME-CRITICAL REMOVAL ACTION OF PCB- AND PAH-CONTAMINATED SOIL SITE 12, HOMELESS DEVELOPMENT INITIATIVE BUILDINGS, REVISION 0 | ADMIN RECORD INFO REPOSITORY | PAH PCB PVC SOIL SVOC TCRA | 012 | FRC - LAGUNA NIGEL 181-03-0186 2 OF 6 41031802 |
| N60028 / 001125 | DS.0323.17673-2 | 08-08-2002 | TETRA TECH EM INC. | PLAN | 07-01-2002 | V. EARLY | N62474-94-D-7609 | 00323 | NAVAFAC - SOUTHWEST DIVISION | 00175 | | NAVAFAC - SOUTHWEST DIVISION | FINAL SAMPLING AND ANALYSIS PLAN (FIELD SAMPLING PLAN AND QUALITY ASSURANCE PROJECT PLAN) INVESTIGATION OF ELEVATED CONCENTRATIONS OF ARSENIC IN GROUNDWATER - INCLUDES SWDIV TRANSMITTAL LETTER BY E. CASADOS | ADMIN RECORD CONFIDENTIAL INFO REPOSITORY | ARSENIC DATA DQO FSP GW IDWMP MW QAPP QC SAP SOIL TPH UST | 012 BLDG. 1311 BLDG. 1313 | FRC - LAGUNA NIGEL 181-03-0186 3 OF 6 41031802 |

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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001131 | 09-23-2002 | TETRA TECH EM | ENVIRONMENTAL CLOSEOUT | ADMIN RECORD | ACTMEMO | 001 | FRC - LAGUNA |
| DS.A016.10057 & SWDIV SER | 08-01-2002 | INC. | STRATEGY/SCHEDULES - INCLUDES SWDIV | INFO | ARSENIC | 003 | NIGEL |
| 06CA.JS/0878 | DO 16 | | TRANSMITTAL LETTER BY J. SULLIVAN | REPOSITORY | AST | 004 | 181-03-0186 |
| MISC | | NAVFAC - | | | BCT | 005 | 3 OF 6 |
| N68711-00-D-0005 | | SOUTHWEST | | | BRAC | 006 | |
| 00150 | | DIVISION | | | CAP | 007 | 41031802 |
| | | | | | CERCLA | 008 | |
| | | | | | COST | 009 | |
| | | | | | EBS | 010 | |
| | | | | | EE/CA | 011 | |
| | | | | | FFSRA | 012 | |
| | | | | | FOSL | 013 | |
| | | | | | FOST | 014 | |
| | | | | | FS | 015 | |
| | | | | | GW | 016 | |
| | | | | | HERBICIDE | 017 | |
| | | | | | LF | 019 | |
| | | | | | METALS | 020 | |
| | | | | | NPL | 021 | |
| | | | | | PAH | 022 | |
| | | | | | PCB | 024 | |
| | | | | | PIPELINE | 025 | |
| | | | | | QAPP | 027 | |
| | | | | | RAB | 028 | |
| | | | | | RD | 029 | |
| | | | | | REMEDIAL ACTIO | BLDG. 257 | |
| | | | | | RI | BLDG. 289 | |
| | | | | | ROD | BLDG. 290 | |
| | | | | | SAP | BLDG. 3 | |
| | | | | | SEDIMENTS | BLDG. 325 | |
| | | | | | SI | BLDG. 335 | |
| | | | | | SLUDGE | BLDG. 41 | |
| | | | | | SOIL | BLDG. 62 | |
| | | | | | SOLVENTS | BLDG. 99 | |
| | | | | | SVE | | |

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| Doc. Control No. | Prc. Date | Author Affil. | | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| | | | | | SVOC | | | |
| | | | | | TPH | | | |
| | | | | | UST | | | |
| | | | | | VOC | | | |
| | | | | | WWTP | | | |
| N60028 / 001133 | 09-23-2002 | NAVFAC - | TRANSMITTAL OF DRAFT MINUTES FROM 6 | ADMIN RECORD | ARSENIC | 007 | | FRC - LAGUNA |
| DS.A016.10061 & | 09-10-2002 | SOUTHWEST | AUGUST 2002 REMEDIAL PROJECT | INFO | BCT | 011 | | NIGEL |
| SWDIV SER | DO 16 | DIVISION | MANAGER/BASE REALIGNMENT AND | REPOSITORY | BRAC | 012 | | 181-03-0186 |
| 06CA.JS/0928 | | J. SULLIVAN | CLOSURE (BRAC) CLEANUP TEAM (BCT) | | EBS | 024 | | 3 OF 6 |
| MM | | VARIOUS | MONTHLY MEETING INCLUDES: AGENDA, | | EE/CA | BLDG. 180C | | |
| N68711-00-D-0005 | | AGENCIES | SIGN-IN SHEET, REVISED ACTION ITEM | | GW | BLDG. 66 | 41031802 | |
| 00040 | | DISTRIBUTION | TABLE, & VARIOUS HANDOUTS | | HPCDD | PARCEL T094 | | |
| | | | | | HXCDD | UST 180C | | |
| | | | | | METALS | | | |
| | | | | | MONITORING | | | |
| | | | | | MTG MINS | | | |
| | | | | | MW | | | |
| | | | | | PAH | | | |
| | | | | | PCB | | | |
| | | | | | PECDD | | | |
| | | | | | PECDF | | | |
| | | | | | PESTICIDES | | | |
| | | | | | RAB | | | |
| | | | | | SOIL | | | |
| | | | | | TCDD | | | |
| | | | | | TPH | | | |
| | | | | | WELLS | | | |
| N60028 / 001130 | 09-23-2002 | TETRA TECH EM | CHEMICAL AND SOLID WASTE | ADMIN RECORD | BAP | 012 | | FRC - LAGUNA |
| DS.A035.10059 | 09-18-2002 | INC. | CONTAMINATED SOIL ENGINEERING | INFO | EE/CA | | | NIGEL |
| RPT | DO 35 | V. EARLY | EVALUATION AND COST ANALYSIS (EE/CA) | REPOSITORY | LEAD | | | 181-03-0186 |
| N68711-00-D-0005 | | NAVFAC - | (SEE COMMENTS RE: IR UPDATE) [SEE AR | | PAH | | | 3 OF 6 |
| 00400 | | SOUTHWEST | #1380 - DRAFT REVISED EE/CA AND AR | | PCB | | | |
| | | DIVISION | #1391 - REVISED EE/CA] | | TPH | | | 41031802 |
| | | | | | VOC | | | |

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| Record Type | Record Date | Author | | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 001141 DS.A016.10445 MM N68711-00-D-0005 00027 | 12-17-2002 10-01-2002 DO 0016 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | MINUTES FROM REMEDIAL PROJECT MANAGERS AND BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MEETING OF 1 OCTOBER 2002 | ADMIN RECORD INFO REPOSITORY | BCT BRAC EBS EE/CA MTG MINS PIPELINE PUBNOT | 006 009 010 011 012 016 024 BLDG. 227 BLDG. 572 BLDG. 66 PARCEL T08C PARCEL T09C PARCEL T09C | FRC - LAGUNA NIGEL 181-03-0186 3 OF 6 41031802 | |
| N60028 / 001142 DS.A016.10445 MM N68711-00-D-0005 00030 | 12-17-2002 11-05-2002 DO 0016 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | MINUTES FROM REMEDIAL PROJECT MANAGERS AND BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MEETING OF 5 NOVEMBER 2002 | ADMIN RECORD INFO REPOSITORY | ACTMEMO BCT BRAC EBS EE/CA GW MONITORING MTG MINS MW RAB SOIL BORING TECH MEMO WORK PLAN | 006 009 010 011 012 024 029 BLDG. 180 BLDG. 66 PARCEL T08C PARCEL T09C PARCEL T-93 UST 180C | FRC - LAGUNA NIGEL 181-03-0186 3 OF 6 41031802 | |
| N60028 / 001145 DS.A016.10451 & SWDIV SER 06CA.JS/0417 MM N68711-00-D-0005 00030 | 02-11-2003 01-07-2003 DO 016 | TETRA TECH EM INC. NAVFAC - SOUTHWEST DIVISION | DRAFT REMEDIAL PROJECT MANAGERS AND BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MEETING MINUTES FROM 07 JANUARY 2003 MEETING - INCLUDES AGENDA, SIGN-IN SHEET, AND MISCELLANEOUS ATTACHMENTS | ADMIN RECORD INFO REPOSITORY | MTG MINS PCB TCDD TPH | 006 011 012 024 PARCEL T09C | FRC - LAGUNA NIGEL 181-03-0186 4 OF 6 41031802 | |

| UIC No. / Rec. No. | | | | | | | Location |
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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001151 | 05-07-2003 | TETRA TECH EM | 04 MARCH 2003 DRAFT REMEDIAL | ADMIN RECORD | MTG MINS | 012 | FRC - LAGUNA |
| DS.A016.10457 & | 03-04-2003 | INC. | PROJECT MANAGERS AND BASE | INFO | RAB | 024 | NIGEL |
| SWDIV SER | DO 016 | | REALIGNMENT AND CLOSURE (BRAC) | REPOSITORY | | 030 | 181-03-0186 |
| 06CA.JS/0633 | | VARIOUS | CLEANUP TEAM (BCT) MEETING MINUTES - | | | | 4 OF 6 |
| MM | | AGENCIES | INCLUDES AGENDA, SIGN-IN SHEET, | | | | |
| N68711-00-D-0005 | | | VARIOUS HANDOUTS, AND SWDIV | | | | 41031802 |
| 00050 | | | TRANSMITTAL BY J. SULLIVAN | | | | |
| N60028 / 001157 | 07-07-2003 | SHAW | DRAFT PROJECT CONTROL PLANS FOR | ADMIN RECORD | DDT | 012 | FRC - LAGUNA |
| 6227 & SWDIV SER | 06-27-2003 | ENVIRONMENTAL, | THE HOUSING AREA SITEWIDE | INFO | DFTPP | | NIGEL |
| 06CA.JS/0985 | 00106 | INC. | INVESTIGATION - CONTAINS DRAFT | REPOSITORY | PAH | | 181-03-0186 |
| PLAN | | | QUALITY CONTROL PLAN AND DRAFT | | PCB | | 5 OF 6 |
| N62474-98-D-2076 | | NAVFAC - | SAMPLING AND ANALYSIS PLAN (FIELD | | SVOC | | 41031802 |
| 00200 | | SOUTHWEST | SAMPLING PLAN/QUALITY ASSURANCE | | TPH | | |
| | | DIVISION | PROJECT PLAN) - INCLUDES SWDIV | | VOC | | |
| | | | TRANSMITTAL LETTER BY J. SULLIVAN | | | | |
| N60028 / 001156 | 07-07-2003 | TETRA TECH EM | DRAFT GROUNDWATER STATUS REPORT | ADMIN RECORD | BTEX | 004 | FRC - LAGUNA |
| DS.A036.10925-1 | 06-30-2003 | INC. | SUMMARY OF GROUNDWATER | INFO | DCE | 009 | NIGEL |
| RPT | DO 0036 | C. FREEMAN | MONITORING MAY THROUGH DECEMBER | REPOSITORY | MTBE | 010 | 181-03-0186 |
| N68711-00-D-0005 | | NAVFAC - | 2002, VOLUMES I-II OF II [CD COPY | | PAH | 011 | 5 OF 6 |
| 02000 | | SOUTHWEST | ENCLOSED OF APPENDICES B THROUGH G] | | PCB | 012 | 41031802 |
| | | DIVISION | | | PCE | 014 | |
| | | E. CASADOS | | | TCE | 015 | |
| | | | | | TPH | 019 | |
| | | | | | VOC | 020 | |
| | | | | | | 021 | |
| | | | | | | 024 | |
| | | | | | | 025 | |
| | | | | | | 180C | |
| | | | | | | 201 | |
| | | | | | | 227 | |
| | | | | | | 368B | |
| | | | | | | D1B | |
| | | | | | | D4B | |
| | | | | | | F2A | |
| | | | | | | F2B | |

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| N60028 / 001163 | 6228 & SWDIV SER 06CA.JS/1124 | 08-08-2003 | SHAW ENVIRONMENTAL, INC. | PLAN | 07-28-2003 | 00106 | | | NAVFAC - SOUTHWEST DIVISION | 00300 | | | FINAL PROJECT PLANS FOR THE SITE 12 HOUSING AREA, SITEWIDE INVESTIGATION - INCLUDES RESPONSE TO COMMENTS ON THE DRAFT PROJECT PLANS, SITE 12 HOUSING AREA, SITEWIDE INVESTIGATION AND SWDIV TRANSMITTAL LETTER BY J. SULLIVAN | ADMIN RECORD INFO REPOSITORY | COMMENTS DDT DFTPP PAH PCB SVOC TPH VOC | 012 | FRC - LAGUNA NIGEL 181-03-0186 6 OF 6 41031802 |
| N60028 / 001175 | DS.A036.10303, DS.A036.10305 & SER 06CA.JS/1575 | 01-15-2004 | TETRA TECH EM INC. | RPT | 12-01-2003 | DO 0036 | | L. LEIST NAVFAC - SOUTHWEST DIVISION | N68711-00-D-0005 | 00350 | | | FINAL INTERIM GROUNDWATER STATUS REPORT: SUMMARY OF GROUNDWATER MONITORING AT SITES 11, 12, 21, AND 24 MAY THROUGH AUGUST 2003 [INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] (PORTION OF MAILING LIST IS CONFIDENTIAL) [CD COPY ENCLOSED] | ADMIN RECORD CONFIDENTIAL INFO REPOSITORY | DCE GW PAH PCB PCE SVOC TCE TPH VOC | 011 012 021 024 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001181 | DS.A016.13001 & SWDIV SER 06CA.JS/0240 | 03-04-2004 | TETRA TECH EM INC. | MM | 12-02-2003 | DO 0016 | | DISTRIBUTION | N68711-00-D-0005 | 00040 | | | 02 DECEMBER 2003 DRAFT REMEDIAL PROJECT MANAGERS AND BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) - INCLUDES AGENDA, SIGN-IN SHEET, VARIOUS DOCUMENTS [SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] | ADMIN RECORD INFO REPOSITORY | MTG MINS PAH PCB | 012 | SOUTHWEST DIVISION - BLDG. 1 PARCEL T09€ PARCEL T111 |
| N60028 / 001182 | DS.B006.13036 & SWDIV SER 06CA.JS/0240 | 03-04-2004 | SULTECH | MM | 02-03-2004 | 00006 | | DISTRIBUTION | N68711-03-D-5104 | 00030 | | | 03 FEBRUARY 2004 DRAFT REMEDIAL PROJECT MANAGERS AND BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) - INCLUDES AGENDA, SIGN-IN SHEET, VARIOUS DOCUMENTS [SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] | ADMIN RECORD INFO REPOSITORY | DCE MTG MINS PCE TCE VOC | 009 010 012 014 024 031 | SOUTHWEST DIVISION - BLDG. 1 |

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| N60028 / 001194 | 04-23-2004 | SULTECH | DRAFT REMEDIAL PROJECT MANAGERS (RPM) AND BASE REALIGNMENT AND CLOSURE CLEANUP TEAM MEETING MINUTES, [INCLUDES TRANSMITTAL LETTER BY J. SULLIVAN] | ADMIN RECORD | FOST | 012 | SOUTHWEST DIVISION - BLDG. 1 | | | | | |
| DS.B006.13040 & SWDIV SER. 06CA.JS/0358 | 03-02-2004 | NAVFAC - SOUTHWEST DIVISION | | INFO REPOSITORY | GW | 024 | | | | | | |
| MM | 00006 | | | | MEETING MINUTE | 025 | | | | | | |
| N68711-03-D-5104 | | | | | PCB | | | | | | | |
| 00038 | | | | | UST | | | | | | | |
| N60028 / 001212 | 07-26-2004 | SULLIVAN CONSULTING GROUP | FINAL GROUNDWATER STATUS REPORT: SUMMARY OF GROUNDWATER MONITORING FOR MAY THROUGH DECEMBER 2003 [INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] | ADMIN RECORD | DCE | 011 | SOUTHWEST DIVISION - BLDG. 1 | | | | | |
| DT 110-08.02 & SER 06CA.EC/0461 | 05-01-2004 | J. WERTER | | CONFIDENTIAL | GW | 012 | | | | | | |
| RPT | 00001 | NAVFAC - SOUTHWEST DIVISION | (PORTION OF MAILING LIST IS CONFIDENTIAL) [CD COPY ENCLOSED] | INFO REPOSITORY | PAH | 021 | | | | | | |
| N68711-03-C-5023 | | E. CASADOS | | | PCB | 024 | | | | | | |
| 00400 | | | | | PCE | | | | | | | |
| | | | | | SVOC | | | | | | | |
| | | | | | TCE | | | | | | | |
| | | | | | TPH | | | | | | | |
| | | | | | VOC | | | | | | | |
| N60028 / 001211 | 07-01-2004 | SHAW ENVIRONMENTAL, INC. | DRAFT DATA SUMMARY REPORT, HOUSING AREA, SITEWIDE INVESTIGATION [INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] {CD COPY ENCLOSED} | ADMIN RECORD | BTEX | 012 | SOUTHWEST DIVISION - BLDG. 1 | | | | | |
| 7646 & SWDIV SER. 06CA.JW/0669 | 06-29-2004 | J. BAUR | | INFO REPOSITORY | DCE | | | | | | | |
| RPT | 00106 | NAVFAC - SOUTHWEST DIVISION | | | MTBE | | | | | | | |
| N62474-98-D-2076 | | | | | PAH | | | | | | | |
| 00030 | | | | | PCB | | | | | | | |
| | | | | | REPORT | | | | | | | |
| | | | | | SVOC | | | | | | | |
| | | | | | VOC | | | | | | | |

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| N60028 / 001232 | 12-06-2004 | SULTECH | DRAFT REMEDIAL PROJECT MANAGERS (RPM) AND BASE REALIGNMENT AND CLOSURE (BRAC) CLEANUP TEAM (BCT) MEETING MINUTES | ADMIN RECORD | PAH | 006 | | SOUTHWEST |
| DS.B006.13060 | 08-03-2004 | | | INFO | PCB | 012 | | DIVISION - BLDG. 1 |
| MTG MINS | 00006 | NAVFAC - SOUTHWEST DIVISION | | REPOSITORY | VOC | 015 | | |
| N68711-03-D-5104 | | | | | | 021 | | |
| 00015 | | | | | | 024 | | |
| | | | | | | 025 | | |
| | | | | | | 027 | | |
| | | | | | | 033 | | |
| | | | | | | 227 | | |
| | | | | | | BLDG. 180 | | |
| | | | | | | BLDG. 450 | | |
| | | | | | | BLDG. 454 | | |
| | | | | | | BLDG. 530 | | |
| | | | | | | BLDG. 62 | | |
| N60028 / 001219 | 09-22-2004 | SHAW ENVIRONMENTAL, INC. | FINAL DATA SUMMARY REPORT SITEWIDE INVESTIGATION REVISION 0 [INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] {CD COPY ENCLOSED} | ADMIN RECORD | BTEX | 012 | | SOUTHWEST |
| 8380 & SWDIV SER. 06CA.SA/0930 RPT | 09-09-2004 | J. BAUR | | INFO REPOSITORY | DCE | | | DIVISION - BLDG. 1 |
| N62474-98-D-2076 | 00106 | NAVFAC - SOUTHWEST DIVISION | | | MTBE | | | |
| 00060 | | | | | PAH | | | |
| | | | | | PCB | | | |
| | | | | | REPORT | | | |
| | | | | | SVOC | | | |
| | | | | | TPH | | | |
| | | | | | VOC | | | |
| N60028 / 001236 | 12-09-2004 | SULTECH | DRAFT TECHNICAL MEMORANDUM INVESTIGATION OF ARSENIC IN GROUNDWATER [INCLUDES SWDIV TRANSMITTAL LETTER BY R. PLASEIED] {PORTION OF MAILING LIST IS CONFIDENTIAL} | ADMIN RECORD | ARSENIC | 012 | | SOUTHWEST |
| DS.B052.14490 & SWDIV SER MPMOW.EC\0045 RPT | 10-01-2004 | J. WICKHAM | | CONFIDENTIAL | TPH | | | DIVISION - BLDG. 1 |
| N68711-03-D-5104 | DO 0052 | NAVFAC - SOUTHWEST DIVISION | | INFO REPOSITORY | TPH-E | | | |
| 00100 | | | | | TPH-P | | | |

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| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. | |
| N60028 / 001234 | 12-06-2004 | SULTECH | 02 SEPTEMBER 2004 DRAFT REMEDIAL | ADMIN RECORD | GW | 002 | | SOUTHWEST |
| DS.B006.13064 | 10-05-2004 | | PROJECT MANAGERS (RPM) AND BASE | INFO | PCB | 010 | | DIVISION - BLDG. 1 |
| MTG MINS | 00006 | NAVFAC - | REALIGNMENT AND CLOSURE (BRAC) | REPOSITORY | | 012 | | |
| N68711-03-D-5104 | | SOUTHWEST | CLEANUP TEAM (BCT) MEETING MINUTES | | | 014 | | |
| 00017 | | DIVISION | | | | 022 | | |
| | | | | | | 024 | | |
| | | | | | | 025 | | |
| | | | | | | 027 | | |
| | | | | | | 030 | | |
| | | | | | | 031 | | |
| | | | | | | 227 | | |
| | | | | | | BLDG. 233 | | |
| | | | | | | BLDG. 343 | | |
| | | | | | | BLDG. 344 | | |
| N60028 / 001233 | 12-06-2004 | SULTECH | 05 OCTOBER 2004 DRAFT REMEDIAL | ADMIN RECORD | GW | 012 | | SOUTHWEST |
| DS.B006.13068 | 10-26-2004 | | PROJECT MANAGERS AND BASE | INFO | PCB | 015 | | DIVISION - BLDG. 1 |
| MTG MINS | 00006 | NAVFAC - | REALIGNMENT AND CLOSURE (BRAC) | REPOSITORY | SOIL | 020 | | |
| N68711-03-D-5104 | | SOUTHWEST | CLEANUP TEAM (BCT) MEETING MINUTES | | | 021 | | |
| 00013 | | DIVISION | | | | 024 | | |
| | | | | | | 14/22 | | |
| | | | | | | 227 | | |
| | | | | | | BLDG. 083 | | |
| | | | | | | BLDG. 205 | | |
| | | | | | | BLDG. 233 | | |
| N60028 / 001253 | 01-20-2005 | SULTECH | FINAL TECHNICAL MEMORANDUM (TM) | ADMIN RECORD | PVC | 012 | | SOUTHWEST |
| DS.B052.14492 | 01-01-2005 | J. WICKHAM | INVESTIGATION OF ARSENIC IN | CONFIDENTIAL | TPH | | | DIVISION - BLDG. 1 |
| RPT | 00052 | NAVFAC - | GROUNDWATER {PORTION OF MAILING | INFO | TPH-E | | | |
| N68711-03-D-5104 | | SOUTHWEST | LIST IS CONFIDENTIAL} | REPOSITORY | TPH-P | | | |
| 00150 | | DIVISION | | | | | | |

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| N60028 / 001259 | 02-16-2005 | SULTECH | DRAFT SUMMARY AND | ADMIN RECORD | DCE | 012 | SOUTHWEST | | | | | |
| DS.B017.13913 & SWDIV SER J. SULLIVAN RPT | 02-01-2005 00017 | D. CROTEAU BRAC - SAN DIEGO | RECOMMENDATIONS FOR GROUNDWATER MONITORING [INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] | INFO REPOSITORY | GW MONITORING PCE TCE TPH VOC | 021 024 | DIVISION - BLDG. 1 | | | | | |
| N68711-03-D-5104 00025 | | | | | | | | | | | | |
| N60028 / 001269 | 04-20-2005 | SULTECH | FINAL GROUNDWATER STATUS REPORT: | ADMIN RECORD | GW | 012 | SOUTHWEST | | | | | |
| DS.B017.13914 & SWDIV SER BPMOW.JS/0552 RPT | 03-31-2005 00017 | D. CROTEAU BRAC - SAN DIEGO E. CASADOS | SUMMARY OF GROUNDWATER MONITORING FOR MAY AND OCTOBER 2004 [INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] {CD COPY ENCLOSED} | INFO REPOSITORY | MONITORING PAH PCB PCE SVOC TCE TPH TPH-E TPH-P VOC | 021 024 | DIVISION - BLDG. 1 | | | | | |
| N68711-03-D-5104 00300 | | | | | | | | | | | | |
| N60028 / 001272 | 05-17-2005 | SULTECH | DRAFT REMEDIAL INVESTIGATION (RI) | ADMIN RECORD | PCB | 012 | SOUTHWEST | | | | | |
| DS.B052.14547 & SWDIV SER 06CA.JW/0692 RPT | 05-01-2005 00052 | V. EARLY NAVFAC - SOUTHWEST DIVISION | REPORT WORK PLAN (WP) [INCLUDES SWDIV TRANSMITTAL LETTER BY J. SULLIVAN] | INFO REPOSITORY | PCDD PCDF RI TCDD VOC WP | | DIVISION - BLDG. 1 | | | | | |
| N68711-03-D-5104 00200 | | | | | | | | | | | | |
| N60028 / 001296 | 08-23-2005 | SULTECH | DRAFT TECHNICAL MEMORANDUM : LONG | ADMIN RECORD | TECH MEMO | 012 | SOUTHWEST | | | | | |
| TC.B017.12222 RPT | 08-12-2005 00017 | D. CROTEAU NAVFAC - SOUTHWEST DIVISION | TERM MONITORING OPTIMIZATION OF GROUNDWATER AT OLD BUNKER AREA | INFO REPOSITORY | TPH UST | | DIVISION - BLDG. 1 | | | | | |
| N68711-03-D-5104 00100 | | | | | | | | | | | | |

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| N60028 / 001300 NONE RPT NONE 00005 | 11-07-2005 11-02-2005 NONE | SHAW ENVIRONMENTAL, INC. NAVFAC - SOUTHWEST DIVISION | FINAL TECHNICAL MEMORANDUM FOR RADIOLOGICAL FIELD SCREENING (INCLUDES FIGURE 1) | ADMIN RECORD INFO REPOSITORY | RADIOLOGICAL TECH MEMO | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001306 TC.B017.12253 AND BRAC SER BPMOW.JW1390 RPT N68711-03-D-5104 00125 | 12-15-2005 11-16-2005 00017 | SULTECH NAVFAC - SOUTHWEST DIVISION | FINAL TECHNICAL MEMORANDUM, LONG - TERM MONITORING OPTIMIZATION OF GROUNDWATER, OLD BUNKER AREA (INCLUDES BRAC TRANSMITTAL LETTER BY J. SULLIVAN) [PORTION OF MAILING LIST IS CONFIDENTIAL] {CD COPY OF APPENDIX C ENCLOSED} | ADMIN RECORD INFO REPOSITORY | AOC COPC SAP TPH UST | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001363 NONE COMMENTS NONE 00002 | 07-21-2006 03-15-2006 NONE | DTSC - BERKELEY D. RIST BRAC PMO WEST J. WHITCOMB | COMMENTS AND CONCURRENCE ON THE FINAL HISTORICAL RADIOLOGICAL ASSESSMENT (SEE COMMENTS) | ADMIN RECORD INFO REPOSITORY | | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001343 DS.B052.14549 RPT N68711-03-D-5104 00150 | 04-19-2006 04-11-2006 00052 | SULTECH BRAC PMO WEST | FINAL REMEDIAL INVESTIGATION REPORT WORK PLAN, OLD BUNKER AREA [CD COPY ENCLOSED] (SEE AR #1344 - BRAC TRANSMITTAL LETTER BY J. SULLIVAN) | ADMIN RECORD INFO REPOSITORY | COPC COPEC PCB VOC | 012 | SOUTHWEST DIVISION - BLDG. 1 |

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| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001344 BRAC SER BPMOW.JW\0343 CORRESP NONE 00002 | 04-19-2006 04-11-2006 NONE | BRAC PMO WEST J. SULLIVAN DTSC - BERKELEY D. RIST | TRANSMITTAL OF THE FINAL REMEDIAL INVESTIGATION (RI) REPORT WORK PLAN, OLD BUNKER AREA (SEE AR #1343 - FINAL REMEDIAL INVESTIGATION REPORT WORK PLAN, OLD BUNKER AREA) | ADMIN RECORD INFO REPOSITORY | (RI) BRAC | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001359 B209-02 RPT N68711-01-D-6004 00030 | 06-23-2006 05-01-2006 00002 | PACIFIC TREATMENT ENV. SERV. BRAC PMO WEST | DRAFT SAMPLING AND ANALYSIS PLAN (SAP) ADDENDUM 02 (FIELD SMAPLING PLAN/QUALITY ASSURANCE PROJECT PLAN {FSP/QAPP}) FACILITY GROUNDWATER MONITORING PROGRAM (SEE AR #1199 - FINAL SAP AND AR #1361 - FINAL SAP ADDENDUM 02) | ADMIN RECORD INFO REPOSITORY | FSP GW MONITORING QAPP SAP | 012 PETROLEUM PETROLEUM | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001360 BRAC SER BPMOW.JW/0430 CORRESP NONE 00003 | 06-23-2006 05-12-2006 NONE | BRAC PMO WEST J. SULLIVAN CRWQCB - OAKLAND A. FARRES | TRANSMITTAL OF DRAFT SAMPLING AND ANALYSIS PLAN (SAP) ADDENDUM 02 (FIELD SMAPLING PLAN/QUALITY ASSURANCE PROJECT PLAN {FSP/QAPP}) FACILITY GROUNDWATER MONITORING PROGRAM (W/OUT ENCLOSURE) (SEE AR #1359 - DRAFT SAP ADDENDUM 02) | ADMIN RECORD INFO REPOSITORY | FSP GW MONITORING QAPP SAP | 012 PETROLEUM PETROLEUM | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001361 B209-04 RPT N68711-01-D-6004 00020 | 06-23-2006 06-01-2006 00002 | PACIFIC TREATMENT ENV. SERV. BRAC PMO WEST | FINAL SAMPLING AND ANALYSIS PLAN (SAP) ADDENDUM 02 (FIELD SMAPLING PLAN/QUALITY ASSURANCE PROJECT PLAN {FSP/QAPP}) FACILITY GROUNDWATER MONITORING PROGRAM (SEE AR #1199 - FINAL SAP AND AR #1359 - DRAFT SAP ADDENDUM 02) | ADMIN RECORD INFO REPOSITORY | FSP GW MONITORING QAPP SAP | 012 PETROLEUM PETROLEUM | SOUTHWEST DIVISION - BLDG. 1 |

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| N60028 / 001362 BRAC SER BPMOW.JW/0510 CORRESP NONE 00003 | | 06-23-2006 06-09-2006 NONE | BRAC PMO WEST J. SULLIVAN CRWQCB - OAKLAND A. FARRES | | | | | TRANSMITTAL OF FINAL SAMPLING AND ANALYSIS PLAN (SAP) ADDENDUM 02 (FIELD SMAPLING PLAN/QUALITY ASSURANCE PROJECT PLAN {FSP/QAPP}) FACILITY GROUNDWATER MONITORING PROGRAM (W/OUT ENCLOSURE) [SEE AR #1361 - FINAL SAP ADDENDUM 02] | ADMIN RECORD INFO REPOSITORY | FSP GW MONITORING QAPP SAP | 012 PETROLEUM PETROLEUM | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001379 BRAC SER BPMOW.JW/0513 CORRESP NONE 00003 | | 09-06-2006 06-12-2006 NONE | BRAC PMO WEST J. SULLIVAN DTSC - BERKELEY D. RIST | | | | | TRANSMITTAL OF DRAFT REVISED ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA) SOLID WASTE DISPOSAL AREAS, OLD BUNKER AREA (SEE AR #1380 - DRAFT REVISED EE/CA) | ADMIN RECORD INFO REPOSITORY | DISPOSAL EE/CA | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001380 DS.B129.20747 RPT N68711-03-D-5104 00150 | | 09-06-2006 06-12-2006 00129 | TETRA TECH EM INC. BRAC PMO WEST | | | | | DRAFT REVISED ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA), SOLID WASTE DISPOSAL AREAS, OLD BUNKER STORAGE AREA (CD COPY ENCLOSED) [SEE AR #1379 - BRAC PMO WEST TRANSMITTAL LETTER BY J. SULLIVAN AND AR #1130 - DRAFT EE/CA] | ADMIN RECORD INFO REPOSITORY | AOC BAP COC DISPOSAL EE/CA NTCRA PAH PCB SWDA TPH VOC | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001381 NONE COMMENTS NONE 00001 | | 09-06-2006 07-12-2006 NONE | D. SMITH BRAC PMO WEST J. WHITCOMB | | | | | REVIEW AND COMMENTS ON DRAFT REVISED ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA), SOLID WASTE DISPOSAL AREAS | ADMIN RECORD INFO REPOSITORY | DISPOSAL EE/CA GW | 012 | SOUTHWEST DIVISION - BLDG. 1 |

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| N60028 / 001382 | FILE NO. 2169.6013(AF) COMMENTS NONE 00003 | 09-06-2006 07-21-2006 NONE | CRWQCB - OAKLAND A. FARRER BRAC PMO WEST J. WHITCOMB | | | | | | | | | | REVIEW AND COMMENTS ON DRAFT REVISED ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA), SOLID WASTE DISPOSAL AREAS, OLD BUNKER STORAGE AREA | ADMIN RECORD INFO REPOSITORY | DISPOSAL EE/CA PAH PCB SOIL VOC | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001377 | BRAC SER BPMOW.LNL/0707 CORRESP NONE 00001 | 09-05-2006 08-14-2006 NONE | BRAC PMO WEST J. SULLIVAN DISTRIBUTION | | | | | | | | | | TRANSMITTAL OF DRAFT SCREENING- LEVEL ECOLOGICAL RISK ASSESSMENT (W/OUT ENCLOSURE) [SEE AR #1378 - DRAFT ASSESSMENT] | ADMIN RECORD INFO REPOSITORY | | 006 012 021 024 030 031 032 033 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001378 | DS.B126.20517 RPT N68711-03-D-5104 00325 | 09-05-2006 08-14-2006 00126 | TETRA TECH EM INC. C. ROSE BRAC PMO WEST | | | | | | | | | | DRAFT SCREENING-LEVEL ECOLOGICAL RISK ASSESSMENT (CD COPY ENCLOSED) [SEE AR #1377 - BRAC PMO WEST TRANSMITTAL LETTER BY J. SULLIVAN] | ADMIN RECORD INFO REPOSITORY | BAF DDD DDE DDT HXCDF PCB PCE PECDF ROD TCDD TCDF TCE TEQ VOC | 006 012 021 024 030 031 032 033 | SOUTHWEST DIVISION - BLDG. 1 |

| UIC No. / Rec. No. | | | | | | | Location |
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| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001390 BRAC SER BPMOW.JHW/0024 CORRESP NONE 00001 | 10-16-2006 10-12-2006 NONE | BRAC PMO WEST J. SULLIVAN DISTRIBUTION | TRANSMITTAL OF REVISED ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA) SOLID WASTE DISPOSAL AREAS, OLD BUNKER STORAGE AREA (W/OUT ENCLOSURE) [SEE AR 1391 - REVISED EE/CA] | ADMIN RECORD INFO REPOSITORY | DISPOSAL EE/CA SOLID WASTE | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001391 DS.B129.20749 RPT N68711-03-D-5104 00100 | 10-16-2006 10-12-2006 00129 | SULTECH BRAC PMO WEST | REVISED ENGINEERING EVALUATION AND COST ANALYSIS (EE/CA) SOLID WASTE DISPOSAL AREAS, OLD BUNKER STORAGE AREA (SEE AR #1390 - BRAC PMO WEST TRANSMITTAL LETTER BY J. SULLIVAN AND AR #1130 - EE/CA) [SEE COMMENTS] | ADMIN RECORD INFO REPOSITORY | COC COPC DISPOSAL EE/CA PAH PCB SWDA TCRA TPH VOC | 012 | SOUTHWEST DIVISION - BLDG. 1 |
| N60028 / 001394 BRAC SER BPMOW.JHW/0122 CORRESP NONE 00002 | 11-20-2006 11-08-2006 NONE | BRAC PMO WEST J. SULLIVAN DTSC - BERKELEY D. MURPHY | TRANSMITTAL OF PRE-DRAFT ACTION MEMORANDUM/ INTERIM REMEDIAL ACTION PLAN (RAP): NON-TIME CRITICAL REMOVAL ACTION (NTCRA) FOR SOLID WASTE DISPOSAL AREAS, OLD BUNKER AREA (W/OUT ENCLOSURE) [SEE AR #1395 - PRE-DRAFT] | ADMIN RECORD INFO REPOSITORY | DISPOSAL NTCRA RAP SOLID WASTE | 012 | SOUTHWEST DIVISION - BLDG. 1 |

| UIC No. / Rec. No. | | | | | | | Location |
|--------------------|-------------------|------------------|--------------------------------------|----------------|-------------|------------|--------------------|
| Doc. Control No. | Prc. Date | Author Affil. | | | | | FRC Access. No. |
| Record Type | Record Date | Author | | | | | FRC/SWDIV Box No. |
| Contr./Guid. No. | CTO No. | Recipient Affil. | | | | | FRC Warehouse Loc. |
| Approx. # Pages | EPA Cat. # | Recipient | Subject | Classification | Keywords | Sites | CD No. |
| N60028 / 001395 | 11-20-2006 | SULTECH | PRE-DRAFT MEMORANDUM/ INTERIM | ADMIN RECORD | AM | 012 | SOUTHWEST |
| DS.B129.20751 | 11-10-2006 | S. BRADLEY | REMEDIAL ACTION PLAN (RAP): NON-TIME | INFO | ARAR | | DIVISION - BLDG. 1 |
| RPT | 00129 | NAVFAC - | CRITICAL REMOVAL ACTION (NTCRA) FOR | REPOSITORY | BRAC | | |
| N68711-03-D-5104 | | SOUTHWEST | SOLID WASTE DISPOSAL AREAS, OLD | | CERCLA | | |
| 00150 | | K. ROONEY | BUNKER AREA (SEE AR #1394 - BRAC PMO | | COC | | |
| | | | WEST TRANSMITTAL LETTER BY J. | | DISPOSAL | | |
| | | | SULLIVAN) [SEE COMMENTS] | | HRA | | |
| | | | | | NTCRA | | |
| | | | | | PAH | | |
| | | | | | PCB | | |
| | | | | | RAP | | |
| | | | | | RCRA | | |
| | | | | | SOLID WASTE | | |
| | | | | | TCRA | | |
| N60028 / 001402 | 12-07-2006 | SHAW | FINAL SITE HEALTH AND SAFETY PLAN, | ADMIN RECORD | ARSENIC | 012 | SOUTHWEST |
| FZN1 DCN 0003 0 | 11-30-2006 | ENVIRONMENTAL, | DISSOLVED ARSENIC TREATABILITY STUDY | INFO | SHSP | BLDG. 1311 | DIVISION - BLDG. 1 |
| RPT | FZN01 | INC. | | REPOSITORY | UST | BLDG. 1313 | |
| N62470-02-D-3260 | | BRAC PMO WEST | | | | | |
| 00100 | | | | | | | |

Total Estimated Record Page Count: 26,278

Total - Administrative Records: 291

[UIC NUMBER]='N60028'

No Keywords

Sites=012

No Classification

**ATTACHMENT 5:
REGULATORY COMMENTS ON THE PRE-DRAFT
ACTION MEMORANDUM / INTERIM REMEDIAL ACTION PLAN: NON-TIME
CRITICAL REMOVAL ACTION FOR SOLID WASTE DISPOSAL AREAS,
INSTALLATION RESTORATION SITE 12, OLD BUNKER AREA, NAVAL STATION
TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA**

RESPONSES TO REGULATORY COMMENTS ON THE PRE-DRAFT ACTION MEMORANDUM / INTERIM REMEDIAL ACTION PLAN: NON-TIME CRITICAL REMOVAL ACTION FOR SOLID WASTE DISPOSAL AREAS, INSTALLATION RESTORATION SITE 12, OLD BUNKER AREA, NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CA

This document presents the U.S. Department of the Navy's (DoN) responses to comments on the "Pre-Draft Action Memorandum (AM) / Interim Remedial Action Plan (IRAP): Non-Time Critical Removal Action (NTCRA) for Solid Waste Disposal Areas, Installation Restoration (IR) Site 12, Old Bunker Area, Naval Station Treasure Island (NAVSTA TI), San Francisco, California."

The DoN received comments from (1) the Department of Toxic Substances Control (DTSC) on December 7, 2006; (2) the U.S. Environmental Protection Agency (EPA) on December 1, 2006; and (3) the San Francisco Bay Regional Water Quality Control Board (Water Board) on November 27, 2006. Comments also were provided by the Treasure Island Development Authority (TIDA). These comments were received from Geomatrix Consultants, Inc. on behalf of TIDA on October 31, 2006. The DoN's responses to the comments received from DTSC, EPA, Water Board, and TIDA are presented below.

Responses to Comments from Henry Wong, Remedial Project Manager, Office of Military Facilities, DTSC

- 1. Comment:** **Remedial Action Plan:** The Navy applies the non-time critical removal process for the proposed removal. DTSC has a similar Removal Action Workplan process for removal actions less than one million dollars. Since the proposed Site 12 remedy is more than 10 million dollars, DTSC reviews and approves the AM/IRAP as a Remedial Action Plan in accordance with all applicable State laws, statutes, codes, guidelines, and policies.

Response: Comment noted. Text of the AM/IRAP will not be revised.

- 2. Comment:** **DTSC Approval:** Please replace the AM/IRAP, section 10 title with "Declaration/Statutory Determination" and replace the text preceding DTSC's signatory with the following:

"The Navy prepared this AM/IRAP pursuant to the California Health and Safety Code, section 25350 and the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300.400 et seq.). The selected remedy, as described in section 9 of this AM/IRAP, for the upper four feet of soils within the SWDA A&B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court boundaries is intended to be protective of residents and utility workers in current building configuration. DTSC will select the final remedy for IR Site 12 on a

Responses to Comments from Henry Wong (Continued)

separate decision document. The selected remedy complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial actions and is cost effective. DTSC hereby approves this AM/IRAP in accordance with the California Health and Safety Code, section 25356.1(b).”

Response: The text will be revised as requested.

3. **Comment:** **Non-Binding Allocation of Responsibility:** Please create a new section entitled “Non-Binding Allocation of Responsibility” and insert the following paragraphs:

“The California Health and Safety Code, section 25356.1(e) requires the preparation of a nonbinding allocation of responsibility (NBAR) among all identifiable potentially responsible parties (PRPs). The California Health and Safety Code, section 25356.3(a) allows PRPs with an aggregate allocation in excess of 50 percent to convene an arbitration proceeding by submitting to binding arbitration before an arbitration panel. If PRPs with over 50 percent of the allocation convene arbitration, then any other PRP wishing to do so may also submit to binding arbitration.

“The sole purpose of the NBAR is to establish which PRPs will have an aggregate allocation in excess of 50 percent and can therefore convene arbitration if they so choose. The NBAR, which is based on the evidence available to DTSC, is not binding on anyone, including PRPs, DTSC, or the arbitration panel. If a panel is convened, its proceedings are de novo and do not constitute a review of the provisional allocation. The arbitration panel’s allocation will be based on the panel’s application of the criteria spelled out in the California Health and Safety Code, section 25356.3(c) to the evidence produced at the arbitration hearing. Once arbitration is convened, or waived, the NBAR has no further effect, in arbitration, litigation or any other proceeding, except that both the NBAR and the arbitration panel’s allocation are admissible in a court of law, pursuant to the California Health and Safety Code, section 25356.7 for the sole purpose of showing the good faith of the parties who have discharged the arbitration panel’s decision.

“DTSC sets forth the following preliminary nonbinding allocation of responsibility for SWDA A&B, SWDA 1207/1209, SWDA 1231/1233, and SWDA Bigelow Court within IR Site 12 at the former NAVSTA TI:

“The Navy is responsible for the investigation and cleanup activities within the area covered in this AM/IRAP. The Navy has an aggregate

Responses to Comments from Henry Wong (Continued)

allocation of liability in excess of the 50 percent level required to convene arbitration pursuant to the California Health and Safety Code, section 25356.3(a).”

Response: The text will be revised to include this section and associated text.

4. **Comment:** **Public Comment Period:** Per Navy-DTSC conference call on December 6, 2006, the Navy and DTSC have agreed to start the 34-day public comment period for the AM/IRAP on December 27, 2006 and end the comment period on January 29, 2007. DTSC plans to hold a public meeting on either January 17 or 23rd. DTSC will work diligently to complete our review process and approve the AM/IRAP by January 31, 2007.

Response: The comment period for public review of the AM/IRAP will be revised to begin on December 27, 2006 and end on January 29, 2007. The DoN acknowledges DTSC’s commitment to complete the review process of the Final AM/IRAP by January 31, 2007.

5. **Comment:** **Remedial Design:** The Navy is preparing a “comprehensive work plan” which will include a sampling and analysis plan, health and safety plan, radiological screening plan, stormwater management plan, and traffic management plan. Regardless of the plan’s nomenclature, DTSC will review such a plan as a Remedial Design and requests that the Navy to prepare the document pursuant to the U.S. Environmental Protection Agency’s (EPA) Remedial Design guidance. To expedite the review and approval process, please resubmit the Remedial Design to DTSC soonest.

Response: A pre-draft of the Removal Action Work Plan / Remedial Design (RAWP/RD) was submitted to the Base Realignment and Closure (BRAC) Cleanup Team (BCT) on 12/15/06 to aid regulatory agency review of the RAWP/RD during the public comment period for the AM/IRAP. Text of the AM/IRAP will not be revised.

6. **Comment:** **California Environmental Quality Act (CEQA):** Approval of the AM/IRAP is a discretionary decision pursuant to CEQA. DTSC needs to evaluate whether project objectives would have a significant impacts to the environment, especially to the adjacent residents and nearby communities. Pursuant to CEQA, DTSC will solicit public inputs on the draft CEQA documents during the AM/IRAP public comment period. DTSC is preparing a draft Initial Study and Negative Declaration, and anticipates that they will be suitable for

Responses to Comments from Henry Wong (Continued)

public review by December 27, 2006 to coincide with the AM/IRAP public comment period.

Response: Comment noted. Text of the AM/IRAP will not be revised.

7. **Comment:** **Section 2.3: The AM/IRAP states that the Water Board is responsible for overseeing cleanup of petroleum-contaminated sites and groundwater. Please delete “groundwater” from the statement.**

Response: The word “groundwater” will be removed from the text of this sentence.

8. **Comment:** **Hardscape: Alternative 3 excludes excavation below hardscape such as concrete sidewalks and driveways. Please provide a figure distinctively showing all hardscape areas, including building locations and carports, where excavation will not be performed. The AM/IRAP should include rationales for leaving these areas intact. Please recall that DTSC expects the Navy to excavate most sidewalks, roadways, backyards, patios, and driveways.**

Response: Although Alternative 3 excludes excavation below hardscape such as concrete sidewalks and driveways, sidewalks that are not contiguous to driveways will be removed when they are adjacent to NTRCA excavations. Sidewalks that are contiguous to driveway slabs will not be removed. Section 5.1.3 of the AM/IRAP will be revised to briefly describe the long-term protectiveness of hardscape as an effective exposure prevention barrier for Alternative 1, 3, and 5. The RAWP/RD will include detailed maps of the excavation areas; as a result, a figure showing all hardscape areas is not included with the Draft AM/IRAP.

9. **Comment:** **Excavation Slope: Figure 4 suggests a 1:1 sloped excavation adjacent to buildings and hardscape areas. Since DTSC has not selected institutional controls to prevent vegetable gardening adjacent to buildings and hardscape areas, DTSC requires vertical cut on the excavation sidewalls down to two to four feet below ground surface, depending on engineering considerations, to minimize the potential for produce grown in contaminated soils.**

Response: The following text will be added to Section 5.1.1.4: “Vertical cut on the excavation sidewalls down to 4 feet bgs will be implemented as practicable depending on engineering considerations. Applicable engineering considerations include structural stability of excavation, buildings, and hardscape; equipment operability limitations near building

Responses to Comments from Henry Wong (Continued)

and hardscape structures; and project personnel health and safety requirements.”

- 10. Comment:** **Action Levels:** The AM/IRAP proposes the following residential soil cleanup targets at Site 12 and likely to all Naval Station Treasure Island sites: dioxins at 12 ng/kg, lead at 400 mg/kg, polychlorinated biphenyl at 1 mg/kg, polycyclic aromatic hydrocarbon equivalent at 0.62 mg/kg, and methane at 5% by volume in air at the facility property boundary. These cleanup targets exceed the U.S. EPA Region IX and California-Modified residential preliminary remediation goals. DTSC nonetheless believes that these residual concentrations may be acceptable as final cleanup targets. In the final Site 12 Remedial Investigation/Feasibility Study, DTSC will review these cleanup targets for appropriateness as final cleanup targets. Pending such determination, DTSC requires that the Site 12 SWDAs’ cleanup targets be applied as maximum concentrations.

Please note that if Site 12 were to be developed as a wetland, the proposed residential soil cleanup targets are not likely adequate to protect ecological receptors.

Response: The DoN acknowledges that the BCT has reviewed and concurred with the cleanup levels established in the IR Site 12 Engineering Evaluation / Cost Analysis (EE/CA) for this NTCRA (SulTech 2006). The EE/CA established the EPA Region 9 residential risk-based PRG for lead in soil (400 mg/kg maximum) will be used as the cleanup level for Lead in soil within the SWDAs at Site 12. The DoN and the TIDA have agreed to evaluate sites based on the 1996 Reuse Plan, which specifically identifies IR Site 12 for residential, open space, and publicly oriented uses (City and County of San Francisco [CCSF] 1996). The text of the AM/IRAP will not be revised.

- 11. Comment:** **Confirmation Samples:** Please provide the frequencies and identify locations of confirmation sidewall and floor samples.

Response: The extent of contamination and completeness of the NTCRA will be verified by collecting samples for analysis to confirm concentrations of chemicals of concern (COC) meet the established cleanup levels. Details on the frequency and locations of confirmation samples will be presented in the RAWP/RD for this NTCRA. The text of the AM/IRAP will not be revised.

- 12. Comment:** **Excavation Depth:** The AM/IRAP proposes excavation down to four feet below ground surface. To document this agreed-upon strategy,

Responses to Comments from Henry Wong (Continued)

please provide the rationale for not excavating potentially contaminated soil beyond the four-foot depth.

Response: This planned NTCRA is meant to address potential risk from direct contact with soil to a resident or utility worker under the current land use and utility configuration (SulTech 2006). Due to the shallow depth of groundwater at IR Site 12, it is unlikely that dry soils exist deeper than 4 feet below ground surface (bgs). The following text will be added to Section 5.1.1 of the AM/IRAP: “Excavation to a depth of 4 feet bgs approaches the groundwater table. A visible geotextile material will be placed at the base of an excavation before backfilling to delineate the vertical extent of the excavation, as well as inhibit the transport of contaminated subsurface soils (at depths greater than 2 or 4 feet bgs) to the surface.”

13. Comment: **Clean Soil Backfill:** The AM/IRAP proposes backfilling the excavation with clean soil. Please identify the source and specify performance standards for clean backfill. DTSC’s fact sheet “Information Advisory, Clean Import Fill Material” dated October 2001 specifies criteria for clean fill materials. DTSC requests the Navy to adopt these criteria.

Response: The source and specific performance standards for the clean backfill will be provided in the RAWP/RD. The RAWP/RD references the noted DTSC fact sheet “Information Advisory, Clean Import Fill Material” dated October 2001. The text of the AM/IRAP will not be revised.

14. Comment: **Section 5.1.2:** Please replace “Proposed Plan” with “Proposed Plan/Draft Remedial Action Plan” and replace “Record of Decision” with “Record of Decision/Remedial Action Plan.”

Response: The text will be revised as suggested.

15. Comment: **Section 5.1.1.8:** Upon completion of the remedial action, DTSC requires soil sampling at selected locations to ensure that remediation activities have not introduced new contamination to the project areas. The Remedial Design should detail this sampling plan.

Response: The RAWP/RD will outline the sampling and analysis to be performed to make certain the removal action site has not been contaminated as a result of NTCRA activities. The text of the AM/IRAP will not be revised.

Responses to Comments from Henry Wong (Continued)

16. Comment: Unexploded Ordnance: The Navy used the Site 12 areas for ammunition storage from 1940s to 1960s. Please discuss whether the Navy has conducted unexploded ordnance survey and received clearance at the Site 12 areas.

Response: The DoN has collected samples for analysis of chemical residues typically associated with munitions and explosives of concern (MEC) throughout the SWDAs at IR Site 12. The results were not indicative of disposal MEC. In addition, no MEC has been discovered during previous removal actions as well as extensive potholing throughout IR Site 12. The text of the AM/IRAP will not be revised.

17. Comment: Page iv and other sections: Please cite the California Health and Safety Code without using an acronym.

Response: California Health and Safety Code will be spelled out in all locations throughout the document.

18. Comment: Page iv: Please replace “Interim Remedial Action Work Plan” with “Interim Remedial Action Plan.”

Response: The text will be revised as requested.

Responses to Comments from Christine Katin, EPA Remedial Project Manager

Specific Comments

1. **Comment:** Section 5.1.1.4, Task 4 – Excavation, page 17:

The action memo states that Residents of some buildings may be temporarily displaced while work is performed adjacent to their buildings. If residents need to be relocated, the Navy will coordinate with the Treasure Island Development Authority in advance to minimize any disruptions. When will the decision be made to relocate residents? What conditions would merit relocation? Would residents be displaced for the entire 3 month period of excavation activities? Table 4 includes costs associated with excavation, but does not indicate whether relocation costs are included in that estimate. Please provide more information as to the likelihood of relocation, number of housing units that could be affected, time period of relocation, and costs associated with the relocation.

Response: Displacement of affected tenants residing within residential units within the property leased by the DoN to TIDA is outside the scope of this AM/IRAP. In accordance with the Treasure Island Housing Lease executed between TIDA and the DoN, the DoN coordinates with TIDA to minimize potential conflicts between necessary remediation of environmental contamination and Lessee's and any Sublessee's use of the Leased Premises. John Stewart Company as Sublessee, on behalf of TIDA, has prepared a plan to address temporary displacement and other impacts to residents. An Information Meeting for residents attended by the DoN and the Stewart Company was held on November 29th 2006 at which the Stewart Company presented this plan to residents. No permanent displacement shall be required under this NTCRA. The text of the AM/IRAP will not be revised.

Responses to Comments from Agnes Farres, Project Manager, Water Board

Specific Comments

1. **Comment:** **Section 1:** Pg. 2, 1st paragraph states “The potential risk to human health at IR Site 12 does not warrant an emergency or time-critical removal action (TCRA) because the SWDAs are unoccupied...” According to Figure 3, there are five buildings adjacent to the SWDAs that appear to be occupied (Buildings 1325, 1211, 1213, 1235 and 1237). Verify whether these buildings are unoccupied and revise this statement accordingly.

Response: The sentence will be revised, as follows: to read “The potential risk to human health at IR Site 12 does not warrant an emergency or time-critical removal action (TCRA) because the SWDAs are unoccupied and fenced, or when occupied interim measures are in place to restrict contact with potentially contaminated soil.”

2. **Comment:** **Section 5.1.1.7:** Section 5.1.1.7 states that fabric will be placed at the bottom of excavated areas. Explain what type of fabric will be placed and its purpose.

Response: A visible geotextile material will be placed at the base of an excavation before backfilling to delineate the vertical extent of the excavation, as well as inhibit the transport of contaminated subsurface soils (at depths greater than 4 feet bgs) to the surface ([SulTech 2006](#)). This text has been added to Section 5.1.1 of the AM/IRAP.

3. **Comment:** **Section 5.1.1.7:** Section 5.1.1.7 describes site restoration activities that will take place after excavation. Provide more information on reseeded the common areas (e.g. type of seed mix, application method) and what types of trees will be planted. Reseeding of the common areas and tree planting will likely occur after the rainy season. Describe any maintenance plans to ensure that the reseeded common areas and planted trees become established (e.g. irrigation). Also describe erosion control methods and explain how “erosion control will be developed to aid the growth of native vegetation” (typically, planting vegetation is a form of erosion control).

Response: The DoN will provide watering of the seeded areas for 1 week following planting. Erosion control will be accomplished by restoring the topography of the common areas to a level grade and seeding and planting of saplings within the common areas. Details of the revegetation and erosion control methods for site restorations will be discussed in the

Responses to Comments from Agnes Farres (Continued)

RAWP/RD for this NTCRA. The text of the AM/IRAP will not be revised.

4. **Comment:** **Section 5.1.3: In Section 2.1.3, the description of Alternative 3 states the largest volume of chemical- and solid waste-contaminated soil would be removed under this alternative. Verify the accuracy of this statement since areas under hardscape are excluded under Alternative 3. Because this is the chosen alternative, it is important to state the reasons for choosing this alternative clearly and accurately.**

Response: The text in Section 5.1.3 will be modified to indicate that the volume of chemical- and solid waste-contaminated soil removed is large for Alternative 3 and largest for Alternative 4.

5. **Comment:** **Section 5.1.1, Section 9 and Section 5.1.6: Pg. 14 (last paragraph) and Pg. 27 (second paragraph) both state the chosen alternative will take approximately six months to implement. However, the project schedule (Section 5.1.6) states it will take approximately seven months. Since this action will directly impact residents on TI, it is important to provide the most accurate information possible on the duration of these impacts. Please address the contradictory language in the report.**

Response: The text in Section 5.1.1, second paragraph, second sentence, and the text in Section 9, fourth paragraph, third sentence will be revised from “6” to “7” months.

Responses to Comments from Gary Foote, Principal Geologist, Geomatrix Consultants, Inc., On Behalf of TIDA

General Comments

1. **Comment:** TIDA has noted that several sidewalks (defined as hardscape in the document) that are not adjacent to roadways are significantly cracked or heaved from tree roots, resulting in a potential exposure pathway to underlying soil. Consistent with the approach taken to address roadways that are in poor condition, the selected alternative should address sidewalks that are in poor condition

Response: Sidewalks adjacent to removal action excavations but not contiguous to driveway slabs will be removed under the selected alternative. Sidewalks that are contiguous to driveway slabs will not be removed.

Specific Comments

1. **Comment:** Section 2.1.1 Removal Site Evaluation

At the end of each of the four paragraphs that summarize conditions at each of the four solid waste disposal areas (SWDAs), a sentence concludes that the chemicals of concern (COCs) “...pose a threat to current and future residents and utility workers.” These sentences should be appropriately qualified to indicate that the COCs may potentially pose a threat if interim controls are not maintained. To address this comment, the Navy may wish to use language that is used in the last paragraph of Section 3.1 (i.e., “A potential threat exists, although interim measures such as fencing, covering the ground with concrete pavement or sod, and posting signage have been taken.”).

Response: The text in each of the four paragraphs within Section 2.1.1 will be revised to include the phrase “may potentially pose a threat if interim measures such as fencing, groundcover, hardscape, and posted signage are not maintained.”

2. **Comment:** Section 2.1.4 Releases or Threatened Releases into the Environmental of a Hazardous Substance or Pollutant or Contaminant, third paragraph

This paragraph discusses potential routes of exposure to human receptors. However, it does not discuss all potential routes of exposure (e.g., indoor air). It appears that this paragraph only discusses routes of exposure that will be addressed by the non-time-critical removal action (NTRCA). We suggest that all potential pathways be identified, followed by a discussion about which

Responses to Comments from Gary Foote (Continued)

pathways will and will not be addressed by the NTCRA. This same comment pertains to *the fourth paragraph of Section 3.1.*

Response: The text in Sections 2.1.4 and Section 3.1 will be revised to include a statement regarding relevancy to the NTCRA. Other routes of exposure will be evaluated for IR Site 12 during the RI/FS phases of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

3. Comment: **Section 2.1.4 Releases or Threatened Releases into the Environment of a Hazardous Substance or Pollutant or Contaminant, fourth paragraph**

This paragraph states that “No complete exposure pathways exist to ecologically sensitive ecosystems or receptors at NAVSTA TI.” While this statement may be true for terrestrial receptors, it is not true for aquatic receptors. As stated in Section 3.2, “Because of the close proximity to the Bay, a potential threat exists to ecological receptors in the Bay. This potential threat will be evaluated for IR Site 12 in the RI/FS phases of the CERCLA process.” Section 2.1.4 should be revised to be consistent with Section 3.4.

Response: Section 2.1.4 states “No COCs have been identified in groundwater for this NTCRA at IR Site 12.”

Section 3.2 will be revised to clarify, as follows: “Potential groundwater concerns were identified within SWDA A & B and SWDA 1207/1209 ([SulTech 2006c](#)). Analysis of the data from 2004 for samples collected from monitoring wells in these SWDAs indicated elevated concentrations of metals and identified chemicals of potential concern in groundwater based on a comparison with ambient water quality criteria ([SulTech 2006c](#)). However, chemical concentrations detected in samples from monitoring wells located along the shoreline did not exceed ecological screening levels for surface water. As a result, no groundwater COCs were identified for the NTCRA at IR Site 12.”

4. Comment: **Section 3.1, Threats to Public Health or Welfare**

It is unclear why the following potential threat identified in the National Contingency Plan (NCP) is not being considered: “High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.”

Response: The text will be revised to indicate that the above-mentioned potential threat in NCP would apply only if interim measures were not maintained at IR Site 12.

Responses to Comments from Gary Foote (Continued)

5. **Comment:** **Section 4, Endangerment Determination**
The Navy may wish to indicate that this determination would apply only if interim measures were not maintained.
- Response:** The text in Section 4 will be revised to indicate that the endangerment determination applies if interim measures are not maintained at IR Site 12.
6. **Comment:** **Section 5.1.1.1**
States that excess stormwater may be disposed of at the on-site wastewater treatment plant. Project Office requires Navy to coordinate with San Francisco Public Utilities Commission as the plant operator in advance to assure that materials can be accepted by treatment plant.
- Response:** The text in Section 5.1.1.1 will be revised, as follows: “If necessary, excess stormwater may be disposed of at the on-site wastewater treatment plant in accordance with the stormwater management plan, and disposal will be coordinated with San Francisco Public Utilities Commission plant operations.”
7. **Comment:** **Section 5.1.1.2**
States that “each SWDA excavation site will be secured with a temporary 6 foot high chain link fence to protect the public from the construction efforts.” The Construction Manager has stated that he plans to close public access to the Perimeter Path and to enforce the barrier with security. Project Office request clarification of the plan and objection to the representation of the Project Manager. Barriers surrounding each SWDA excavation site are acceptable. Allow public access to Perimeter Path during non-work hours.
- Response:** Figure 3 will be revised to indicate the location of four gates into the SWDA removal action site along the perimeter road. These gates will be closed on the weekends, allowing public access to the sections of perimeter road between SWDAs 1207/1209 and A & B as well as south of SWDA A & B. Due to safety concerns, access to perimeter road during the work week, will not be allowed. The text of the AM/IRAP will be revised to provide this information.
8. **Comment:** **Section 5.1.1.3, Task 3 – Radiological Soil Screening**
The text states that the Historical Radiological Assessment (HRA) did not identify any known uses of radioactive material at IR Site 12. This statement is not correct. The HRA identified the use of short-

Responses to Comments from Gary Foote (Continued)

lived radioisotopes and Cesium-137 sources at the USS Pandemonium training facility formerly located with Site 12.

Response: The text will be revised to state “The HRA report identified the only know use of radiological material in IR Site 12 occurred at the former USS Pandemonium Damage Control Training Center site, which was located east of SWDA A & B. The radiological material used included sealed cesium-137 sources and short-lived isotopes (bromine-82, bromine-80, potassium-42, and sodium-42) which have half-lives of less than 35.3 hours. The HRA concluded that the USS Pandemonium site was a not impacted from the use of the sealed sources or short-lived isotopes and did not require further investigation or action. The report also summarized the results of radiological screening at more than 580 test

9. Comment: Section 5.1.1.4 Task 4 – Excavation

The text at the beginning of the third paragraph states, “The community may face short-term risks during excavation and removal activities resulting from inhalation of fugitive dust and direct contact with excavated soil. Measures will be taken during excavation...to reduce and control short-term risks.” As written, the text suggests that the residential community may be exposed to short-term risks during excavation. We suggest that the text be revised to clearly indicate that the community will not be exposed to short-term risks because the Navy will implement measures to mitigate such potential exposures. Additionally, we suggest that the text in the third paragraph clarify that the inconvenience in use of backyards will only pertain to those few buildings located within SWDAs.

Response: The text will be revised to emphasize the engineering controls and mitigation measures to be implemented during the NTCRA to minimize the potential for short-term exposure to traffic, noise, dust, and so forth. During excavation, if at any time detectors indicate dust suppression measures are not functioning effectively, the work site will be shut down until such a time that dust suppression measures can be effectively executed.

10. Comment: Section 5.1.1.4

Paragraph 4 states that the Navy will coordinate with TIDA to minimize disruptions associated with temporary displacement of residents. Project Office requests financial contribution from the Navy for costs associated with displacement of residents.

Responses to Comments from Gary Foote (Continued)

Response: In accordance with the Treasure Island Housing Lease, the DoN and TIDA have agreed to coordinate to minimize potential conflicts between necessary remediation of environmental contamination and Lessee's and any Sublessee's use of the Leased Premises. Pursuant to the Lease, tenant removal or relocation shall be at no cost to the DoN.

11. Comment: **Section 5.1.1.7**

States that sod and backyards of occupied buildings will be replaced, common areas reseeded and immature sized trees will be planted. Project Office requires participation in landscape development plans. Project Office requires landscape development of areas in the vicinity of occupied as well as unoccupied areas. Project Office requires replacement of carports and fencing removed for the project. Project Office requires restoration and replacement of all hardscape removed for the project.

Response: The current plan is to landscape all areas affected by the NTCRA. This includes placing sod, grass seeding, and replacing trees with like saplings. Carports removed along Bayside Drive will not be replaced. Asphalt parking areas that are removed will be restored; however, overhangs of the carports in this area will not be replaced. Fencing will be replaced in occupied units only. Backyards currently without backyard fencing will not be provided with new fencing. Roads and sidewalks within SWDA 1207/1209 will be replaced. The asphalt roadway, concrete curbs and gutters along Westside Drive will not be replaced. Specifics on the planned restoration activities will be provided in the RAWP/RD for this NTCRA. The text of the AM/IRAP will not be revised.

12. Comment: **Section 5.1.3 Description of Alternative Technologies**

The description for Alternative 3 indicates that the largest volume of affected soil will be removed under this alternative. However, the largest volume of affected soil will be removed under Alternative 4. Additionally, the text states that institutional controls will be necessary under Alternative 5, but does not make a similar statement for the four other alternatives. We understand that institutional controls will be required under any of the five alternatives.

Response: The text in Section 5.1.3 will be revised to reflect that the volume of chemical- and solid waste-contaminated soil removed is large for Alternative 3 and largest for Alternative 4 (see also the response to Water Board Comment 4). As stated in Sections 5.1 and 5.2, "Institutional controls (IC) were evaluated as part of the EE/CA removal action alternative and a cost estimate was prepared. ICs are not being

Responses to Comments from Gary Foote (Continued)

implemented during the removal action. Instead, site-wide ICs for IR Site 12 will be evaluated and implemented through the CERCLA remedial process (RI/FS, proposed plan, and record of decision).” The text of Section 5.1.3 of the AM/IRAP will be revised to remove the text regarding ICs from the Alternative 5 description.

13. Comment: Section 5.1.6 Schedule

It would be helpful if the text clarified that this schedule only pertains to the work to be conducted at SWDA A&B, 1207/1209, and 1231/1233. The schedule for SWDA Bigelow Court should also be discussed.

Response: The last paragraph of Section 2.2.2 states: “Given the logistics involved with implementing this soil removal action and the need to minimize truck traffic, dust, and noise effects to residents, removal action activities are being limited to the winter season. Therefore, it will be necessary to conduct the removal action over the course of 2 years. Removal actions at SWDA A & B, SWDA 1207/1209, and SWDA 1231/1233 will be conducted in January 2007, and removal actions at SWDA Bigelow Court are planned to begin in winter 2008.” The BCT is currently reviewing the schedule for the SWDA Bigalow Court portion of this NTCRA and it has not yet been finalized.

14. Comment: Section 6 Expected Change in the Situation Should Action be Delayed or not Taken

The text indicates that contamination from the SWDAs could spread to nearby areas via wind erosion and surface water runoff if action should be delayed. This statement raises a question about whether this has been an ongoing issue while Site 12 has been occupied by current residents. We suggest that the text address this potential concern.

Response: Interim measures such as fencing, covering the ground with concrete pavement or sod, and posting signage established by the DoN and DTSC in October 2000, have been taken. Therefore, it is not likely that wind erosion contamination has been an ongoing issue for residents at IR Site 12.

The text will be revised to include a statement indicating that no risk is posed to current residents, unless interim measures are not maintained.

Responses to Comments from Gary Foote (Continued)

15. Comment: Figure 3

The legend indicates that the green line designates the Site 12 boundary. However, it appears that this line has been used to designate the boundaries for the SWDAs.

Response: The legend will be revised to indicate that the green line designates the SWDA boundary and an IR Site 12 boundary will be added to the map and legend.

16. Comment: Figure 5

We suggest that this figure or the text include language that explains the difference between a “truck route” and a “dump truck route.”

Response: Text will be added to the figure legend indicating the difference between the trucks that will be using the “truck route” and the “dump truck route.”

RESPONSES TO COMMENTS ON THE DRAFT VERSION OF THE RESPONSE TO COMMENTS TO THE “PRE-DRAFT ACTION MEMORANDUM / INTERIM REMEDIAL ACTION PLAN: NON-TIME CRITICAL REMOVAL ACTION FOR SOLID WASTE DISPOSAL AREAS, INSTALLATION RESTORATION SITE 12, OLD BUNKER AREA, NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CA”

The DoN submitted a draft of the Response to Comments to the “Pre-Draft AM/IRAP” to the regulatory agencies for review. In an e-mail dated December 20, 2006, DTSC submitted comments; these comments, along with the DoN’s responses, are presented below. In an e-mail dated December 22, 2006, the EPA indicated they had no comments.

The following DTSC comments affecting the Draft RTCs have been incorporated into this document.

RESPONSES TO COMMENTS FROM HENRY WONG, REMEDIAL PROJECT MANAGER, OFFICE OF MILITARY FACILITIES, DTSC

Specific Comments

1. Comment on Navy Response to DTSC Comment 10:

Please include the following statement to the AM/IRAP, Section 2.1.4 and other sections that discuss action levels: “The COC action levels are the maximum concentrations at any given soil sample location. The Navy will not composite soil samples and will not utilize statistical averages in the confirmation sampling program.”

Response: As outlined in the RAWP/RD, four-point composite samples will be taken on a 50-foot grid or a 50-foot section of an excavation sidewall. The laboratory will composite the four individual samples. If the analytical result of the composite sample exceeds the cleanup level, the four individual samples will be analyzed separately. The results from the four individual samples will be reviewed, and the specific areas that represent each individual exceedance will be over excavated laterally. At no time will the analytical samples be statistically averaged to determine results. This procedure has been used by the DoN for many years with agency concurrence for excavations throughout NAVSTA TI and Yerba Buena Island.

2. Comment on Navy Response to DTSC Comment 10:

The Navy responds that the BCT has reviewed and approved the cleanup levels established in EE/CA. Please note that DTSC has no legal approval authority on EE/CA and any action levels cited in the document. However, DTSC has legal approval authority on a Remedial Action Plan, which sets the cleanup levels.

RESPONSES TO COMMENTS FROM HENRY WONG (CONTINUED)

Response: The DoN response to DTSC Comment 10 will be revised to “the BCT has reviewed and concurred with the cleanup levels established in the IR Site 12 Engineering Evaluation / Cost Analysis (EE/CA) for this NTCRA (SulTech 2006).”

3. Comment on Navy Response to DTSC Comment 15:

DTSC continues to request the Navy to title the comprehensive work plan as the “Remedial Design.” The Navy has not been consistent in naming documents. On the 12/19/06 Document Tracking Sheet, the Navy names the comprehensive work plan as the “Removal Action Work Plan.” Please identify such plan in the AM/IRAP as the “Remedial Design.”

Response: Following CERCLA nomenclature, the DoN is performing an NTCRA, not a remedial action, which would require remedial design. However, to meet the DTSC request, the DoN will title the document, “Removal Action Work Plan / Remedial Design (RAWP/RD).” The DoN’s previous response to DTSC Comment 15 will be amended to reflect this change. All references to the “work plan” within the Response to Comments and AM/IRAP will be modified to RAWP/RD.

4. Comment on Navy Response to DTSC Comment 16:

Please provide the reference on the munitions and explosives of concern (MEC) investigation report. DTSC may request the Navy to submit the MEC report to DTSC if necessary.

Response: A MEC investigation report has not been produced. To clarify the previous response, the samples that were collected and analyzed for MEC constituents were gathered during various historical investigations. MEC is not considered an issue; this is based on these chemical results, as well as the fact that no indication of MEC was encountered during grading for existing buildings, utility trenching, past removal actions, and investigative potholing.

5. Additional Text for CEQA Compliance: Please append the following sentence to the AM/IRAP, page 17, third paragraph: “The Navy will follow a traffic management plan which would ensure truck deliveries on and off Treasure Island are scheduled prudently to avoid causing traffic congestion on the bridge during the cleanup period.”

Response: Section 5.1.1.4 of the AM/IRAP will be revised as follows: “The DoN will follow a traffic strategy as outlined in the traffic control section of the RAWP/RD which would ensure truck deliveries on and off Treasure

RESPONSES TO COMMENTS FROM HENRY WONG (CONTINUED)

Island are scheduled prudently to avoid causing traffic congestion on the bridge during the cleanup period.”

General Comment

1. Comment: DTSC has other concerns on the AM/IRAP. However, to meet the Navy's expedited excavation schedule, DTSC is deferring those concerns in the Remedial Design.

Response: Comment noted. The DoN will continue to work with the DTSC to finalize the AM/IRAP and RAWP/RD.

REFERENCES

City and County of San Francisco (CCSF). 1996. "Naval Station Treasure Island Reuse Plan - Public Review Draft." Prepared for the Office of Military Base Conversion, Planning Department, CCSF, and the San Francisco Redevelopment Agency. June 3.

SulTech. 2006. "Revised Engineering Evaluation and Cost Analysis Solid Waste Disposal Areas, Installation Restoration Site 12, Old Bunker Storage Area, Naval Station Treasure Island, San Francisco, California." October.

**ATTACHMENT 6:
RESPONSIVENESS SUMMARY ON THE ACTION MEMORANDUM / INTERIM
REMEDIAL ACTION PLAN: NON-TIME CRITICAL REMOVAL ACTION FOR SOLID
WASTE DISPOSAL AREAS, INSTALLATION RESTORATION SITE 12, OLD
BUNKER AREA, NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CA**

THE U.S. DEPARTMENT OF THE NAVY'S AND DEPARTMENT OF TOXIC SUBSTANCES CONTROL'S RESPONSIVENESS SUMMARY ON THE "DRAFT ACTION MEMORANDUM/INTERIM REMEDIAL ACTION PLAN: NON-TIME-CRITICAL REMOVAL ACTION FOR SOLID WASTE DISPOSAL AREAS, INSTALLATION RESTORATION SITE 12, OLD BUNKER AREA, NAVAL STATION TREASURE ISLAND, SAN FRANCISCO, CALIFORNIA," AND THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL'S RESPONSIVENESS SUMMARY ON THE "DRAFT NEGATIVE DECLARATION"

This document presents the U.S. Department of the Navy's (DoN) and Department of Toxic Substances Control's (DTSC) responses to comments from the public on the "Draft Action Memorandum [AM]/Interim Remedial Action Plan [IRAP]: Non-Time-Critical Removal Action [NTCRA] for Solid Waste Disposal Areas [SWDA], Installation Restoration [IR] Site 12, Old Bunker Area, Naval Station Treasure Island [NAVSTA TI], San Francisco, California," dated December 27, 2006. Additionally, this document presents DTSC's response to comments from the Department of Transportation and from the public on the "Draft Negative Declaration" issued on December 27, 2006 for the AM/IRAP. This Responsiveness Summary also includes responses to verbal comments provided during the January 17, 2007 public meeting.

DoN's AND DTSC's RESPONSES TO COMMENTS SUBMITTED BY THE PUBLIC ON THE DRAFT AM/IRAP

The DoN and DTSC received email comments regarding access to the unimproved boat ramp and adjacent parking lot at the northeastern portion of the island from the following members of the public:

- James McGrath on January 16, 2007
- Paul Kamen on January 17, 2007
- Diane Younger on January 18, 2007
- John D. Kim on January 19, 2007
- Peter Thorner on January 19 and 26, 2007
- Thorsten J. Pray on January 19 and 26, 2007
- Steve Elliott on January 25, 2007
- D. Damis on January 25, 2007
- John C. Brown on January 25, 2007
- John Rushworth on January 25, 2007
- Bob Stevens on January 26, 2007
- Steve Grasso on January 28, 2007
- John Schmuker on January 28, 2007
- Ron Adler on January 29, 2007

DoN's AND DTSC's RESPONSES TO COMMENTS SUBMITTED BY THE PUBLIC ON THE DRAFT AM/IRAP (CONTINUED)

Additionally, during the January 17, 2007 public meeting, the following members of the public made comments regarding access to the unimproved boat ramp and adjacent parking lot:

- James McGrath
- Enrique Benede
- Robert Stroud
- Chris Apicella
- Bradley Johnson
- Taylor Stein
- Bill McCurdy
- Manolis Dimotakis
- Hardy Chambliss
- Diane Portnoy
- John Schmucker
- Timothy Thole

The DoN and DTSC have used Peter Thorner's comments (submitted on January 19 and January 26, 2007, email) to be representative of all the comments (email and in person) received from the people mentioned above regarding recreational access for boardsailing. The DoN's and DTSC's responses to these comments are presented below.

Responses to Comments from Peter Thorner, President of the San Francisco Boardsailing Association (Comments Received on January 19 and 26, 2007)

1. **Comment:** The San Francisco Boardsailing Association (SFBA) is a 1,600-member non-profit organization that promotes public access and safety for the windsurfing and boardsailing community.

Following a review of the above referenced Draft Action Plan / Interim Remediation Action Plan (AM/IRAP) and draft Negative Declaration pursuant to California Environmental Quality Act (CEQA) (Negative Declaration) it has become clear that the proposed action will have a significant environmental impact, specifically to the recreational activity of windsurfing at Treasure Island (TI). The actions called for under the AM/IRAP would effectively shut down windsurfing at TI by eliminating the parking area used by windsurfers and by blocking access to the launch areas that allow windsurfers to reach the water. The majority of these areas do not lie within the remediation area, but the parties who developed the remediation plan found it convenient to use these areas for loading, storage or staging. It is SFBA's hope that the AM/IRAP can be modified to eliminate the significant impact to recreation by finding other areas that can be used for loading, storage and staging.

Response: The recreational activity of windsurfing and boardsailing at Treasure Island is an ad hoc activity undertaken without any invitation from the Navy, and without any permits, licenses, or other use agreements. The DoN has coordinated the planning of the proposed removal action with the Treasure Island Development Authority (TIDA) to minimize potential conflicts between the necessary remediation of environmental contamination and the use of Treasure Island property by the residents of leased premises. Through this planning effort, the DoN has determined that certain areas outside the remediation area will be secured and used for loading, storage, or staging. These plans require that access to the parking lot and boat ramp be restricted for the duration of the removal action to help expedite the performance of the work, while minimizing effects to Treasure Island residents. For a temporary period, the requirement to conduct a cleanup action to remove hazardous substances from the environment to protect the health and safety of residents and to accommodate future reuse and development of Treasure Island must take precedence over the informal recreational access of the windsurfing and boardsailing community.

Many factors were evaluated when looking at the different work areas and potential staging areas before deciding on a final location. These factors included first and foremost, health and safety to surrounding residents, areas that would allow for heavy equipment and easy loading of trucks, the effect to traffic on the island, the topography and current conditions of

Responses to Comments from Peter Thorner (Continued)

each area, and security. Based on these factors, it was determined that the areas shown on the “Truck Staging and Route Map” (Figure 5 of the AM/IRAP) were the best locations for work to occur that would not adversely affect the health and safety of the residents on the island.

2. Comment: Location of Recreational Impacts

An exhibit to both the AM/IRAP and the Negative Declaration entitled 'Figure 5 - Truck Staging and Route Map' shows an area on the map of TI that is shaded orange. The key on the exhibit identifies the area shaded in orange as a "truck loading area for debris area." The location in question appears to be identified on the 'Site Location Map' as area T109. The area shaded in orange/mustard is known as the boat ramp parking lot to recreational users of the bay including windsurfers, kayakers, and fishermen. Windsurfers and others park in this lot in order to have access to the waters of the San Francisco Bay.



Excerpt - Truck Staging and Route Map



Excerpt - Site Location Map

Windsurfers use an unimproved launch on the north side of the boat ramp parking lot that is approximately 50' east of the abandoned transformer pad (Launch 1) and the boat ramp (Launch 2) for launching and landing. In addition, many windsurfers have traditionally rigged their equipment on the dry grassy area behind building 1235 and 1237 (Rigging Area). The Rigging Area lies within the east end of clean up area SWDA 1231/1233. A number of years ago, TIDA staff had a portion of the fence removed between the Rigging Area and the perimeter road so that windsurfers could carry their rigged gear to the boat ramp without impediment. The various sites mentioned are delineated in Figure 1 below.

Responses to Comments from Peter Thorner (Continued)



Figure 1 - Windsurfing Use Areas at Treasure Island

Also visible in Figure 1 is a portable toilet that is located along the west side of the parking area. SFBA has covered the cost of placing a portable toilet on site during the season because of the popularity of the site. During the last windsurfing season, this was the only unimproved site where SFBA chose to incur the expense of providing a portable toilet.

Response: The recreational use of Navy property by windsurfers and boardsailors is an ad hoc activity undertaken without any invitation from the DoN, and without any permits, licenses, or use agreements. The DoN and DTSC understand that boardsailing and kayaking are recognized future potential uses; however, such future potential use of the property should be distinguished from the current circumstances that must be addressed prior to property transfer and redevelopment. Currently the Navy property that is the area of concern for the boardsailing and kayaking community is not a recognized recreational resource.

3. Comment: WINDSURFING USE AT TREASURE ISLAND

Treasure Island is a significant regional resource for the windsurfing community. The site in question has been used continuously by windsurfers more than 10 years. Treasure Island has been growing in popularity and importance as a windsurfing spot as windsurfers have learned that there are many days when the wind conditions at Treasure Island are ideal even though the wind at most other sites is too light for most windsurfers. During weekends when the wind conditions are ideal it is normal for the boat ramp parking lot to be nearly full with the vehicles of windsurfers with peak vehicle counts at

Responses to Comments from Peter Thorner (Continued)

or above 60 and peak users at or above 65-70. There are some days when the wind conditions at TI are ideal for most users and the wind conditions at other regional sites such as Crissy Field or Berkeley are not sufficient to justify launching. Most of the users of Treasure Island primarily use boards and sails that are designed for high wind conditions. This equipment may not provide the power or flotation to allow for use in light winds. Launching at Treasure Island enables many windsurfers to safely access the waters that lie between Treasure Island, Angel Island, and Alcatraz. The launch at Treasure Island has been used to stage races and the sailing site is also used by professional windsurfers as a site to train for national and international competition.

In light of the exceptional windsurfing access at the north end of Treasure Island, the area is recognized by the Bay Conservation and Development Commission (BCDC) as location where access for windsurfing and other bay users shall be provided. Bay Plan Map 4, as approved by BCDC, identifies the north end of TI as a location where there shall be the provision of “parking and water access for users of small watercraft.” While the San Francisco Bay now has over 200 miles of publicly accessible shoreline, there less than a dozen sites along those shores where facilities and site conditions allow for the kind of superior access that can frequently attract large numbers of windsurfers (peak use of 50 or more). The site has also been designated as a location for the provision of windsurfing access in the conceptual redevelopment plans prepared by Treasure Island Community Development (TICD). The conceptual plan prepared by TICD also anticipate that there will be a second windsurf access point to the west of the boat ramp in the future, but access in that area is currently infeasible due to the lack of parking, lack of a means to get the equipment to the shoreline, and the lack of any ramp or walkway that would allow one to safely cross the rip rap to the waterline. Access on the west side of the island is infeasible because winds blowing directly or almost directly on shore push launching windsurfers back into the rip rap. Access on the east or south side of the island is infeasible due to lack of sufficient wind.

Response: The DoN and DTSC understand that access for boardsailing is a recognized future potential use of portions of Treasure Island. The DoN and DTSC acknowledge that the Bay Conservation and Development Commission and the Treasure Island Community Development plans designate this area for future use as a boardsailing access point. However, the site currently is not designated for recreational use.

Responses to Comments from Peter Thorner (Continued)

4. Comment: ALTERNATIVES TO AVOID IMPACTS

(1) Relocating the "truck loading area for debris area" and maintaining vehicular access to the boat ramp parking lot could preserve access with nominal impact. The loss of the rigging area that lies in or near SWDA 1231/1232 may not be significant because windsurfers can and do rig in the parking lot. There appear to be a number of open areas on Treasure Island that could be used as an alternative site for the truck loading area for debris area:

Shift the "truck loading area for debris area" from the boat ramp parking lot to an area within the areas already designated under the remediation plan for soil stockpile and truck loading. The boat ramp parking lot accounts for less than 1/2 an acre out of the approximately 6.5 acres that have been set aside in the remediation plan for soil storage, debris storage or truck loading. This means that the lot accounts for about 12% of the space set aside.

Shift the "truck loading area for debris area" from the boat ramp parking lot to another open area that is not currently within areas already designated under the remediation plan for soil stockpile and truck loading. Immediately adjacent to the other soil stockpile and storage areas are large open areas that do not appear to be in use (e.g. the area south of 13th between Avenue H and Avenue I and the area bounded by 13th, 11th, Avenue E and Avenue H). Using only a portion of one of these areas could replace any area not used in the boat ramp parking lot while allowing a buffer to still be maintained between the loading area and residential uses.

(2) Allowing for remote parking on the southeast side of the training building coupled with a corridor allowing foot access from the parking to the launch site. While this alternative is less desirable, it would allow windsurfers to gain safe and useful access if they were willing to carry their equipment approximately 400' to the launch.

(3) Avoid impacting the recreational use by windsurfers by remediating SWDA 1231/1233 during the times when windsurfing use is light or non-existent. The period of the year when the windsurfing use negligible and other recreational uses is lowest runs from November through February. The use of the area by windsurfers increases in the spring and is highest in the summer months. The time of day use is generally in the afternoon as the best winds are created by thermal winds that increase during the day. Most users during the summer months arrive at the site between 2-4 pm.

Response: The timing of the NTCRA was set to occur during the winter months because occupied housing areas and occupied buildings will have to be

Responses to Comments from Peter Thorner (Continued)

tarped off on a side. It would be less an impact for the occupants in these buildings if the work were conducted in cooler months. The DoN is responsible for compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirement to conduct a NTCRA to remove hazardous substances from the environment in order to protect the health and safety of residents. The CERCLA activities also will support property transfer objectives and thus future development of Treasure Island. These considerations must take precedence over the recreational access interests of the boardsailing community.

5. **Comment:** **POLICIES THAT PROTECT RECREATIONAL ACCESS**

In the State of California, the State Constitution, the Navigation Code, and the MacAteer-Petris Act include provisions that establish State policy that the State’s tidelands should normally be available to all users. The standard in the Constitution is that “No individual...shall be permitted to exclude the right of way to such water...” That mandate further calls for the most liberal construction of the provision. The legislature has provided such further liberal construction, in Section 39933 of the Government Code, and in Section 40 of the Navigation Code. The former provides: “All navigable waters situated within or adjacent to city shall remain open to the free and unobstructed navigation of the public.” The latter calls for facilities and connecting waterways to be open to all. Further, such liberal provision is provided in the MacAteer-Petris Act and in the Bay Plan. The former provides in Section 66602: that “...that existing public access to the shoreline and waters of the San Francisco Bay is inadequate and that maximum feasible public access, consistent with a proposed project, should be provided.” The Bay Plan Map 4 identifies the recreational site at Treasure Island and provides the following language in the map notes, “Provide parking and water access for users of small watercraft at north end of Treasure Island.”

Response: The requirements of the tideland trust do not currently apply to Treasure Island. Therefore, planning and implementation of the DoN’s CERCLA response action is not constrained by policies and guidelines for the protection of recreational access to areas encumbered by the Tidelands Trust. As mentioned in the responses to comments #1 and #3, the area of concern is not an area that can properly be identified as a “recreational resource” at the current time.

The DoN has identified the Coastal Zone Management Act, the McAteer-Petris Act, and the Bay Plan as applicable or relevant and appropriate

Responses to Comments from Peter Thorner (Continued)

requirements (ARARs). The NTCRA will comply with the Bay Plan and thus will comply with the McAteer-Petris Act and the Coastal Zone Management Act. The DoN identified the Coastal Zone Management Act as a federal location-specific ARAR. The DoN recognizes the following substantive provisions of the Bay Plan as a state location-specific ARAR:

- The Bay Plan at Cal. Code Regs. tit. 14, §§ 10110-11990 – prohibiting uncontrolled development and filling of the Bay, reducing disposal of dredged material in the Bay, maintaining marshes and mudflats to the fullest extent possible to conserve wildlife and abate pollution, and protecting the beneficial uses of the Bay.

6. **Comment:** **EXPOSURE TO TOXIC METALS**

The proposed remediation plan calls for the toxic soil to be controlled so that toxic materials do not put humans or the natural environment at risk. The SFBA believes that if the job is done properly, no risk outside of the work zone would be present. Dust monitors should be operating and work should cease if toxic materials are being dispersed. This is an issue that relates to residents and the health of the San Francisco Bay as well as to recreational users.

Response: The DoN has developed an air monitoring plan that will protect the health of residents and building occupants at the site during completion of the NTCRA. Dust monitors will be placed along the perimeters of the excavation areas to ensure that levels do not exceed the dust screening levels for the site. An on-site health and safety officer will provide continuous visual monitoring. The NTCRA complies with the Bay Area Air Quality Management District (BAAQMD) Regulation 6-302. Additionally, access to the site will be restricted during completion of the NTCRA and only authorized personnel will be allowed on site.

7. **Comment:** **TRUCK TRAFFIC**

The level of traffic is moderate and would not create an undo risk to windsurfers traveling on Avenue M between 13th Street and the alternate lot that lies between the old training building and the sewer plant. If necessary a flag man could be employed at a minimal cost. Traffic conflict is not expected between the trucks and the windsurfers that use the site.

Response: The DoN's plans for conducting the proposed removal action require that street access be restricted for the duration of the removal action to help expedite the work, while minimizing effects to Treasure Island residents. For a temporary period, the requirement to conduct a cleanup action to

Responses to Comments from Peter Thorner (Continued)

remove hazardous substances from the environment to protect the health and safety of residents and to accommodate future reuse and development of Treasure Island must take precedence over recreational access interests of the boardsailing and kayaking communities.

8. **Comment:** **INJURIES/INTERFERENCE WITHIN THE JOB SITE**

There will not be a risk of someone inadvertently wandering into the job site if it is fenced off as windsurfers have no conceivable reason to enter the jobsite area.

Response: As indicated in the response to comment 6 from Mr. Thorner, access to the site will be restricted and only authorized personnel will be allowed on site.

9. **Comment:** **NAVY'S LACK OF KNOWLEDGE ABOUT WINDSURFING USE**

The Navy has suggested that the conflict between the proposed remediation plan and the windsurfing use is in part based upon the Navy being unaware of the windsurfing use. SFBA recognizes that the Navy was not directly informed of this conflict until November 2006; however, the public notices distributed by the Navy showed a solid line around the housing area and did not indicate that the boat ramp parking lot might be impacted by the remediation work. In this case the Navy seems to take the stance that the plan cannot be modified once it has been proposed. The Navy has indicated from the start that it would begin work within a week following the close of the public comment period, regardless of the comments received and that the Navy would start a portion of the work that does not occur within the housing area before the response to comments is issued.

Response: The work is scheduled to begin in February 2007. However, this schedule is dependent on the completion of all required CERCLA decision-making processes and documentation. The regulatory agencies (state and federal) will be provided an opportunity to review and comment on the "Draft Removal Action Work Plan / Remedial Design, Non-Time Critical Removal Action, IR Site 12, Three Solid Waste Disposal Areas (SWDAs A&B, 1207/1209, and 1231/1233)" (Shaw 2007) before a final decision is made on the proposed action and the work begins.

The DoN and DTSC received comments on issues other than those addressed in the responses to Mr. Thorner's comments. These additional comments were received from Jim McGrath on January 16, 2007 (via email and hardcopy); and (2) Thorsten J. Pray, on January 19, 2007 (via email).

The DoN's and DTSC's responses to these comments are presented below.

Responses to Comments from Jim McGrath, Berkeley, California

- 1. Comment:** I write as a board member of three organizations who represent recreational windsurfing and kayaking on San Francisco Bay. Those organizations are U.S. Windsurfing, San Francisco Boardsailing Association, and Bay Access. Members of all three groups use the parking lot and the launch ramp on Treasure Island for access to the Bay. The subject RAP and associated documentation is legally inadequate because it fails to consider and evaluate the recreational impacts of the project. Further, the consistency information provided in the document is inadequate, and fails to comply with the requirements of the Federal Coastal Zone Management Act. Similar deficiencies are associated with DTSC's documentation under the California Environmental Quality Act. We believe that the deficiencies of both documents can be remedied by a direct meeting involving the Bay Conservation and Development Commission, the Navy, DTSC, and interested public access groups that result in modification to the project to preserve public access to the Bay. We urge you to schedule such a meeting and modify the project so that its impacts on access are minor and the project may proceed with minimal delay. However, the current document is not sufficient to use in reaching discretionary decisions on the remedial action plan.

Response: The AM/IRAP as it stands is legally adequate. The document is not flawed because of a purported failure to consider and evaluate recreational effects of the project.

As indicated in the previous response to comment 5 from Mr. Thorner, the NTCRA will comply with the Bay Plan and thus will comply with the McAteer-Petris Act and the Coastal Zone Management Act. The DoN identified the Coastal Zone Management Act, the McAteer-Petris Act, and the Bay Plan as ARARs. Because the requirements of the tidelands trust do not apply to Treasure Island while it is federally owned property, planning and implementation of the DoN's CERCLA response action did not take into account policies and guidelines for the protection of recreational access to areas encumbered by the tidelands trust.

Responses to Comments from Jim McGrath (Continued)

The DoN and DTSC recognize that recreational use is a potential future use of the site; however, the DoN and DTSC distinguishes such future potential uses from the current use and requirements that must be met for environmental cleanup prior to transfer of the property.

A public meeting was held on January 19, 2007, in which representatives from DTSC, representatives from the DoN, and interested organizations, such as the SFBA, were in attendance.

2. Comment: CONSISTENCY REQUIREMENTS

The Navy's responsibilities to develop projects that are consistent to the maximum extent practicable with the State's coastal program are established in the CZMA. The procedural requirements that the Navy consult with BCDC in that process are established in the regulations implementing that Act under OCRM's regulations. The Navy's compliance with this process is limited to a single sentence on page 51 of the background memorandum. That sentence does not analyze the projects impacts on recreation, or BCDC's program, but is simply conclusory in nature, and fails to meet the regulatory requirements. Let me review the OCRM regulations for you. Section 930.33(b) of those regulations provide that:

Federal agencies shall consider all development projects within the coastal zone to be activities affecting any coastal use or resource. All other types of activities within the coastal zone are subject to Federal agency review to determine whether they affect any coastal use or resource.

Additional guidance is provided by Section 930.34, which establishes responsibilities for Federal and State agency coordination as follows:

(a)(1) Federal agencies shall provide State agencies with consistency determinations for all Federal agency activities affecting any coastal use or resource. To facilitate State agency review, Federal agencies should coordinate with the State agency prior to providing the determination.

Public participation is encouraged in Section 930.2, and the content of a consistency determination is laid out in Section 930.39 as follows:

a) The consistency determination shall include a brief statement indicating whether the proposed activity will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of the management program. The statement must be based upon an evaluation of the relevant enforceable policies of the management program. A description of this evaluation shall be included in the consistency determination, or provided to the State

Responses to Comments from Jim McGrath (Continued)

agency simultaneously with the consistency determination if the evaluation is contained in another document.

The single line on page 51 fails to address these requirements.

Response: As stated in the previous response to comment 5 from Mr. Thorner, the NTCRA will comply with the Bay Plan, the McAteer-Petris Act, and the Coastal Zone Management Act.

As indicated in previous responses, the DoN and DTSC recognize that recreational use is a potential future use of the site. The DoN and DTSC distinguish such future potential uses from the current land use.

Responses to Comments from Thorsten J. Pray, (January 19, 2007)

1. **Comment:** My concern is with the serious impact this will have on the public's access to the water and, in particular, access for windsurfing and kite sailing sports enthusiasts. There is no reason why the needs for public access at this part of this island can not be accommodated during the Navy's remediation work on the island. I respectfully request that the Navy give serious thought as to how it can accommodate both an easement for public windsailing access to the traditional launching point of the Northeast corner of the island and the equipment staging needs of the remediation subcontractors. The Navy is aware of this location, as it was discussed at the recent T.I.D.A board meeting held in San Francisco in January. The easement discussed was a simple 20 foot wide strip along the waterfront edge of the parking lot currently used by the windsurfers adjacent to the north boat ramp. The easement strip would mean a mere 10 foot net encroachment on the useable area of the former parking lot currently used by the windsurfers. This would result in a very small percentage of staging area and in exchange a very sizable minimization of the negative impact of this project on the established recreational use of this part of the island would be achieved.

Response: As indicated in DoN's and DTSC's response to comment 4 from Mr. Thorner, the DoN is responsible for compliance with the CERCLA requirement to conduct a NTCRA to remove hazardous substances from the environment in order to protect the health and safety of residents. The CERCLA activities will support property transfer objectives and future development of Treasure Island. These considerations must take precedence over the recreational access interests of the boardsailing and kayaking community.

As stated in response to comment 1 from Mr. Thorner, the DoN has coordinated the planning of the proposed removal action with TIDA to minimize potential conflicts between the necessary remediation of environmental contamination and the use of Treasure Island property by residents of leased premises. Throughout this planning effort the DoN has determined that certain areas outside the remediation area will be secured and used for loading, storage or staging. These plans require that access to the parking lot and boat ramp be restricted for the duration of the removal action to facilitate the expeditious and safe performance of the work while minimizing impacts to Treasure Island residents.

Responses to Comments from Thorsten J. Pray, (January 26, 2007)

- 1. Comment:** Following my January 19, 2007 correspondence to you and my discussion with Mr. Cummins of your division, unfortunately, it appears as though the U.S. Navy had made the decision to exclude the further use of Treasure Island by windsurfers before investigating whether such further use could be accommodated. This is in spite of the fact that windsurfers have been using the north east corner of the island at the parking lot adjacent to the boat ramp for parking, rigging, and launching for the last ten years. For the last approximately three years we have even placed a portable toilet at that location for the convenience of the general public. There are two brief concerns I would like to address that relate to the issues in connection with the toxic soils remediation plan that is expected to be underway by February 1, 2007 and secondly the longer term, specifically the period from the time of completion of the remediation work until the Navy actually hands over full ownership of the island. We are concerned that Navy now intends to completely exclude windsurfing access until it delivers control of the island.

There would be minimum disruption, if any at all, to the remediation work by giving a temporary 20 foot wide corridor for the months of May through August, limited to afternoons commencing at 2p.m. The corridor could be created by erecting a temporary and moveable segmented stand alone cyclone fence. It appears that the Navy has failed to comply with any CEQA requirements that would apply in mitigation of any significant impacts. Due to the unprecedented short notice provided as a result of the Navy's last minute extension of the zone of operations, we have had little time to research the precise relationship between the Navy's Remediation Program and any CEQA requirements that the Navy may have either agreed to comply with or be required to follow. Under NEPA requirements the Navy's plan still must state what impacts arise as a result of its program and must also consider alternatives to avoid these impacts. We do not believe that the Navy's plan has taken these factors into consideration. The Negative Declaration makes a finding of significant effect but there are no mitigation measures whatsoever prescribed. This is unreasonable, arbitrary and capricious and unacceptable. DTSC should prescribe a mitigation measure requiring that the Navy preserve water recreation access by the public, during the course of the project. The project is not even characterized in the Negative Declaration as time sensitive and there is no reason why the project must commence operations on February 1st. I respectfully but strenuously object to DTSC allowing this project to commence operations with taking measure to preserve water recreation access for the public.

Responses to Comments from Thorsten J. Pray, (January 26, 2007) (Continued)

Response: As indicated in DoN's and DTSC's responses to Peter Thorner's Comment #4 and the response above, the DoN is responsible for compliance with the CERCLA requirement to conduct a NTCRA to remove hazardous substances from the environment in order to protect the health and safety of residents. The CERCLA activities will support property transfer objectives and future development of Treasure Island. These considerations must take precedence over the recreational access interests of the boardsailing community.

See DTSC's response to Jim McGrath's comment below regarding CEQA.

The process and analysis for removal actions under CERCLA are viewed as superseding the requirements for environmental analysis under NEPA.

The DoN and DTSC received comments during the public meeting held on January 17, 2007, (Peters 2007) on issues other than the access issue to the unimproved boat ramp and adjacent parking lot at the northeastern portion of the island. These comments were received from (1) Robert Stroud, (2) Bradley Johnson, (3) Taylor Stein, (4) Hardy Chambliss, (5) Diane Portnoy, (6) John Schmucker, and (7) Timothy Thole.

Responses to Comments Received During DTSC Public Meeting

1. Comment: Mr. Stroud asked:

When the cleanup occurs, is it removed from the site and deposited, or is the soil cleaned and returned to the site?

Wouldn't it make a lot more sense to not have the work done in the time period when the wind is the worst and when it will require more water to go on the ground? I just wondered then what about the residents on the island who are going to be impacted by that blowing dust at this time of the year.

Response: This NTCRA will result in the permanent removal of soil from the site. All removed soil will be transported to a licensed nonhazardous or hazardous waste disposal facility; the soil will not be brought back to the site.

The NTCRA complies with the BAAQMD District Regulation 6-302. The DoN has extensive experience with soil excavations on Treasure Island and has developed a very detailed protocol that includes dust monitors, hand-held equipment at the work site, work protocols, and so forth. All of the DoN air monitoring previously conducted at Treasure Island has been successful. The safety and health of the workers at the site, the residents, and the occupants of the buildings during the NTCRA is the DoN's highest priority.

2. Comment: Mr. Johnson asked:

What is it that has made the two options (excavation or setting up boundaries) feasible for the sites projected to be cleaned up in the next six months?

Why are certain areas fenced and why are certain areas being excavated? Is there a uniform problem across Treasure Island and certain sites are being designated for certain uses in ten years from now.

Are you clear on the parking lot and the road that accesses the launching spot?...if not, then we can definitely draw a map of this area.

Responses to Comments Received During DTSC Public Meeting (Continued)

Response: The DoN evaluated five options in the Engineering Evaluation/Cost Analysis (EE/CA) (SulTech 2006). Four of the options involve excavations and off-site disposal and the fifth option involves capping the site. The DoN, in consultation with the regulatory agencies and after receiving public comments on the EE/CA, has determined that excavating down to 4 feet below ground surface is the appropriate option for this site because it is protective of human health and the environment and it is economically feasible for the reasonably anticipated future reuse of the site as defined in the Reuse Plan (City and County of San Francisco 1996).

The areas that are designated for excavation are the areas of contamination. The staging area also was evaluated because additional areas outside of the SWDA are needed for the duration of the cleanup. Site 12 has been designated an IR site that is being evaluated under the DoN's CERCLA program. Treasure Island as a whole contains other IR sites that are also being evaluated under the DoN's CERCLA program and are not public property.

The DoN and DTSC know the road and parking lot that Mr. Johnson has referenced.

3. Comment: **Mr. Stein asked:**

How did you choose the time frame that the work was going to be conducted? Was weather or anything like that taken into consideration? (Note: Mr. Dimatokis asked this question as well)

In the previous excavating that you guys did, what time of year did it occur?

Response: The DoN has coordinated the planning of the proposed removal action with the TIDA to minimize potential conflicts between the necessary remediation of environmental contamination and the use of Treasure Island property by residents of leased premises. The time frame for when the work is proposed to be performed was selected because the remediation efforts involve covering sides of buildings with tarps or another type of barrier. This work would ideally occur while the weather was not too warm to minimize the discomfort to residents and building occupants in the area. In addition, damp conditions that typically exist during this time of year augment dust suppression efforts.

The DoN has conducted excavations at various times of the year; many have been conducted during the winter months. In 1999, an excavation conducted at Building 1207/1209 was successfully accomplished at the same time of year as that proposed for the Site 12 excavations.

Responses to Comments Received During DTSC Public Meeting (Continued)

4. **Comment:** Mr. Chambliss asked:

What is being done with the water that is used to spray down the toxic soil? Do you know how many gallons of oil it takes to contaminate the Bay? My guess is a tiny bit and if the water used to spray down the toxic soil gets into the Bay then the Bay will be contaminated. I hope a disgusting mess does not occur like what happened over at Sherman Williams in Emeryville.

How many dust monitors will there be and where will they be placed?

When is the proposed first day for digging so to speak?

Response: The Removal Action Work Plan / Remedial Design will also include a Stormwater Management Plan (SWMP), which will outline the use of best management practices and controls to be used to prevent both stormwater and non-stormwater discharges to the Bay. The amount of water sprayed on the soil will be sufficient to wet the soil to keep dust from forming but not a large enough quantity to cause over saturation of the surface soils and infiltration toward the water table. In addition, the contaminants being addressed in the removal action do not readily dissolve in water; and as long as dust suppression water and stormwater are properly managed, the removal action will not affect the Bay.

The Draft Removal Action Work Plan / Remedial Design (Shaw 2007) proposed four stations to monitor the dust and air. Separate monitors around the areas of essential buildings were also proposed to be placed in addition to the four stations. The locations and the number of monitors will be included in the Final Removal Action Work Plan / Remedial Design. Approval of the work plan by the DoN and DTSC will occur before any excavation activities begin.

The proposed first day of work is in February 2007. As discussed in previous responses, excavation work will not begin until all comments are addressed and all documents are approved by the regulatory agencies.

5. **Comment:** Ms. Portnoy commented:

I am a little concerned about the end of the public comment period and the start of the work because it seems like there is only three days. Are there any guarantees that everything will be addressed before the work begins or somewhere down the road? (Mr. Thole asked the same question)

Responses to Comments Received During DTSC Public Meeting (Continued)

I am concerned about the quality of the Bay during the work. Are we guaranteed that it will be safe to actually launch at that point with all the remediation work going on only twenty feet away?

So there might be a change in how things are handled, and the Navy will evaluate the plan and change the work as items come up? I've seen when there are problems and a sign is put up that says "no one can use this water".

Response: This responsiveness summary will be finalized before excavation work begins. The work is scheduled to begin in February 2007; however, work will not begin until the DoN and DTSC respond to all comments.

Please see the response to Mr. Chambliss' comment regarding the quality of the Bay. As mentioned in previous responses, boardsailing, kayaking, or other recreational use is not an approved use. The DoN will have dust monitors at the site to ensure that trigger levels are not exceeded. Additionally, if excessive dust is being generated during the work or the wind is causing more dust to be generated, then the contractors will execute dust-suppression techniques. The DoN is prepared for several scenarios and has extensive experience conducting excavations at Treasure Island.

Safety of the workers, the residents, and the occupants of the buildings during the NTCRA is the DoN's highest priority. Health and safety procedures include the implementation of procedures to protect human health and the environment that allow for adjustment to operations in the event additional measures are required while the remediation work is being conducted.

6. Comment: Mr. Schmucker commented:

Did you take time in evaluating all the different potential staging areas?

When you were evaluating the staging area or choosing the staging area, were you aware of the long term and heavy use for recreational activities by windsurfers?

Response: Many factors were evaluated when looking at the different work areas and potential staging areas before deciding on a final location. Some of these factors included health and safety to surrounding residents first and foremost, areas that would allow for heavy equipment and easy loading of trucks, the effect to traffic on the island, the topography and current conditions of each area, and security. It was determined that the areas shown on the "Truck Staging and Route Map" (Figure 5 of the AM/IRAP)

Responses to Comments Received During DTSC Public Meeting (Continued)

were the best locations for work to occur that would not adversely affect the health and safety of the residents on the island.

Safety to the residents and to remediation workers was the highest consideration. Consideration was given to all aspects of the resident's use of the island before finalizing the locations of the work areas and determining the effects they would have on the public.

DTSC'S RESPONSES TO COMMENTS SUBMITTED BY THE CALIFORNIA DEPARTMENT OF TRANSPORTATION AND THE PUBLIC ON THE DRAFT NEGATIVE DECLARATION

DTSC received comments from Timothy C. Sable, the District Branch Chief of the California Department of Transportation (DOT), on January 26, 2007. DTSC's responses to these comments are presented below.

Responses to Comments from Timothy C. Sable, the District Branch Chief, California DOT (Comments Received on January 26, 2007)

- 1. Comment: Has water-borne transport of both excavated soil and backfill soil been considered as an alternative? Is it feasible?**

Response: During previous evaluations, disposal of soil via water-borne transport was determined to be logistically nonfeasible and much more costly than ground transport and disposal. Additionally, the BAAQMD and the San Francisco Bay Regional Water Quality Control Board are opposed to the transport of hazardous waste on Bay waters.

- 2. Comment: The document states that the excavated soil will be transported "to appropriate off-site permitted landfills via trucks." It would be helpful to know the locations of the landfills so that potential impacts along the most likely truck routes may be evaluated. Truck routes should be designed to minimize their impact.**

Response: The landfill has not yet been chosen; however, materials excavated during previous remediation activities at NAVSTA TI have been transported and disposed of at Forward Landfill and Kettleman Hill Landfill which are both CERCLA-approved off-site disposal facilities. Bids are being requested from multiple transport and disposal companies. During previous excavation activities, including the arrival and departure of trucks between the hours of 7:00 AM and 4:00 PM, traffic on NAVSTA TI or the Bay Bridge was not affected. The DoN and DTSC agree with the DOT that truck routes should be designed to minimize the impact these trucks would have on traffic, highways, roads, and so forth, and has provided the local truck route information on Figure 5 of the AM/IRAP. Potential trucks routes from Treasure Island to disposal facilities may include Interstates 80, 880, 238, 580, 205, and 5.

- 3. Comment: In both the Initial Study and Negative Declaration sections of the document, "Generation of fugitive dust and particulates at excavation zone ... and truck routes" is listed under "project activities likely to create an impact." However, no information is provided as to how this would be mitigated or minimized. For example, would the**

Responses to Comments from Timothy C. Sable (Continued)

excavated soil loaded onto trucks be covered to prevent the soil from being blown off the trucks and onto the highway during the trip to the landfill site?

Response: The project descriptions of both the Initial Study and draft Negative Declaration identify activities that may create an impact to the environmental resources. This was a general and preliminary identification of project activities that could create an impact. However, in this particular case, elements of the project have been included that reduce the potential of such impacts to insignificance. These elements include monitoring and provisions to stop work if airborne particulates and fugitive dust emissions rise to unacceptable levels, dust suppression measures, and careful soil handling methods. The Initial Study, section 3 of the environmental impact analysis, states the following:

“The BAAQMD regulations specify standards for fugitive dust emissions and particulate matter emissions. The BAAQMD exempts certain operations, under Regulation 2, from obtaining air permits.

“Airborne dust will be visually monitored on a continual basis. Water spray and careful soil handling will be used to prevent airborne dust from reaching workers’ breathing zones and to prevent dust from escaping the perimeter of the Exclusion Zone. In addition, air monitoring instrumentation will be used to document that all field personnel are adequately protected from airborne contaminants.

“Real-time monitoring for dust will be performed in the work areas where the potential for the highest concentrations of dust are expected during activities that may have the potential for dust hazard, such as clearing, excavation, loading and unloading trucks, and stockpiling. A personal data-logging real time data logger will be used to monitor for dust in the work area and on the downwind boundary of the site.

“The site specific actions levels for dust are 2.5 mg/m³ for worker areas and 1.0 mg/m³ for the exclusion zone perimeter. The action levels are based on the lead concentrations in the soil since lead has the highest soil concentration to permissible exposure level ratio, thereby introducing an extra margin of safety for the other constituents.

“Water will be available at all times during excavation, soil handling and loading activities.

Responses to Comments from Timothy C. Sable (Continued)

“DTSC will require the Navy to comply with an air monitoring plan, which is an integral part of the Remedial Design. Therefore, project activities during the 7-month implementation period would not have a conflict with or obstruct implementation of the applicable air quality plan.”

The small-volume dump trucks and the transfer trucks will be loaded with the excavated soil within the SWDA and covered during transport to the stockpile area at Site 6. Additionally the work plan requires engineering controls such as periodic watering of contaminated soil. The stockpiles of imported and excavated soil will be covered, and the trucks transporting soil off the island and to the landfill will be covered. The DoN will conduct continuous air monitoring at locations upwind and downwind of each excavation to ensure that workers and residents are not exposed to hazardous dust levels.

4. **Comment:** **The volume of excavated soil will require approximately 1600 truckloads in a 115-day period to transport that material to the disposal site. With two trips per load, there would be approximately 56 truck trips per day. The document assumes that the trips would occur at a constant rate over an 8-hour workday. This means that there would be approximately 4 trips per hour both departing from and arriving at the island. If these trips actually occur at that constant rate, impacts to freeway operation should be relatively minor. On the other hand, if these trips were to be concentrated in a relatively short time period, particularly during the AM or PM commute periods, the impacts to freeway operation could be significant.**

Response: The DoN imported large quantities of soil to TI between December 2006 and January 2007. Approximately 150 trucks per day arrived and departed TI via the Bay Bridge between 7:00 AM and 4:00 PM. This truck traffic, which coincided with rush hour traffic on the Bay Bridge, did not impact either TI or Bay Bridge traffic.

In comparison, a maximum of roughly 60 trucks per day will arrive and depart the island during the course of the excavation work. The excavation truck schedule will run from 7:30 AM to 5:00 PM Monday through Thursday with an estimated time between trucks of 9½ minutes for a maximum production day. The more likely scenario of an estimated average of 40 trucks per day results in a 14-minute interval between trucks.

Responses to Comments from Timothy C. Sable (Continued)

5. **Comment:** Serious consideration should be given to restricting truck arrivals and departures to hours outside of the weekday AM and PM commute periods to minimize the risk of traffic impacts. Some long-term ramp closures are expected to accommodate the construction of the Bay Bridge east span replacement project. It is possible that truck access to and from the island may be affected during the ramp closures.

Response: As indicated in the response to DOT comment 1, the DoN and DTSC agree that truck routes and schedules need to have a minimal effect on traffic. During previous excavation activities, traffic on NAVSTA TI or the Bay Bridge was not affected. The DoN and DTSC understand that the on/off ramps may be closed because of the replacement project for the eastern span of the Bay Bridge. The DoN is coordinating with DOT to assess whether Bay Bridge construction closures will affect truck traffic from NAVSTA TI.

DTSC received comments from Jim McGrath on the “Draft Negative Declaration” on January 16, 2007. DTSC’s responses to these comments are presented below.

Responses to Comments from Jim McGrath (Comments Received on January 16, 2007)

1. **Comment:** **The subject negative declaration is legally inadequate because it fails to consider and evaluate the recreational impacts of the project. The EIR also fails to identify inconsistencies between the project and adopted plans, specifically, the base reuse plan for Treasure Island and the Bay Plan. Projects that adversely affect recreation, and projects that are inconsistent with adopted plans, are generally considered to have significant impacts under the California Environmental Quality Act.**

Response: The DoN owns a major portion of Treasure Island, including the parking lot and boat ramp at the northeastern end of the island. The Navy has neither invited, permitted, licensed, nor entered use agreements with anyone for accessing the parking lot and boat ramp. Recreational activities such as windsurfing and kayaking at these locations are unauthorized.

Because the activities described are not permitted by the DoN, and were not identified as an ongoing allowed use, DTSC was not aware of the disallowed use at the time that the Initial Study and draft Negative Declaration for this project were prepared. It is therefore not included in DTSC’s analysis of recreational uses or impact to those uses.

As a result of comments received, DTSC has reevaluated the potential from impacts to recreational uses. DTSC has determined that, irrespective of the Site 12 cleanup project, the area of concern to the windsurfers and kayakers is not currently available for recreational use by windsurfers and kayakers. Therefore, DTSC cannot consider such use in the Initial Study, Negative Declaration, and AM/IRAP. DTSC plans to approve the AM/IRAP and Negative Declaration.

The remedial action selected by DTSC is necessary to protect, rehabilitate and enhance the environmental quality of California and the communities affected by toxic substances that are the subject of this project; and to provide the people of the State and the affected communities with clean air and water, enjoyment of aesthetic natural, scenic and historic environmental qualities. The DoN and DTSC have considered alternative remedies, and have determined that this plan provides the most technically feasible and efficient location for carrying out the necessary remediation

Responses to Comments from Jim McGrath (Continued)

activities, while minimizing construction related impacts to the residents in the neighborhood being cleaned up.

2. **Comment:** For many years, the CEQA Guidelines included an appendix that identified the types of impacts that are normally considered to be significant. Adverse impacts on recreation were among those listed. While that appendix has been eliminated, the classes identified were derived from the various court cases interpreting CEQA, and provide important guidance, and in effect, a rebuttable presumption that adverse impacts may be significant. In this particular case, the existing pattern of use, the uniqueness of the site, its designation in both the Bay Plan and the Bay Reuse plan, and the language of PRC 66602 that existing access is not sufficient, all compel a conclusion that closure of this site constitutes a significant impact under CEQA. The failure to be consistent with local plans also generally constitutes a significant impact. This issue is flagged for the Department in Section IX. b) of the CEQA Guidelines. Taken together, these policies at a minimum require the Department to consider the impacts of the project on recreation as well as alternatives and mitigation measures that might avoid or reduce the recreational impact.

Response: In consultation with the DoN, DTSC has determined that the use of the northeastern parking lot and boat ramp by the windsurfer and kayaker communities is unauthorized at this time, even though such use may be contemplated in the future. Further, this project will in no way affect future availability and arrangements for recreational use as contemplated in any proposed reuse plans.

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